Modernize from the inside out: How digital decisioning can improve agility in your Z applications

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Agenda

Why Business Rules

Chris Backhouse

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Organizations are at various stages of application modernization initiatives

92% of organizations have started, delivered, or are continuously improving app mod initiatives
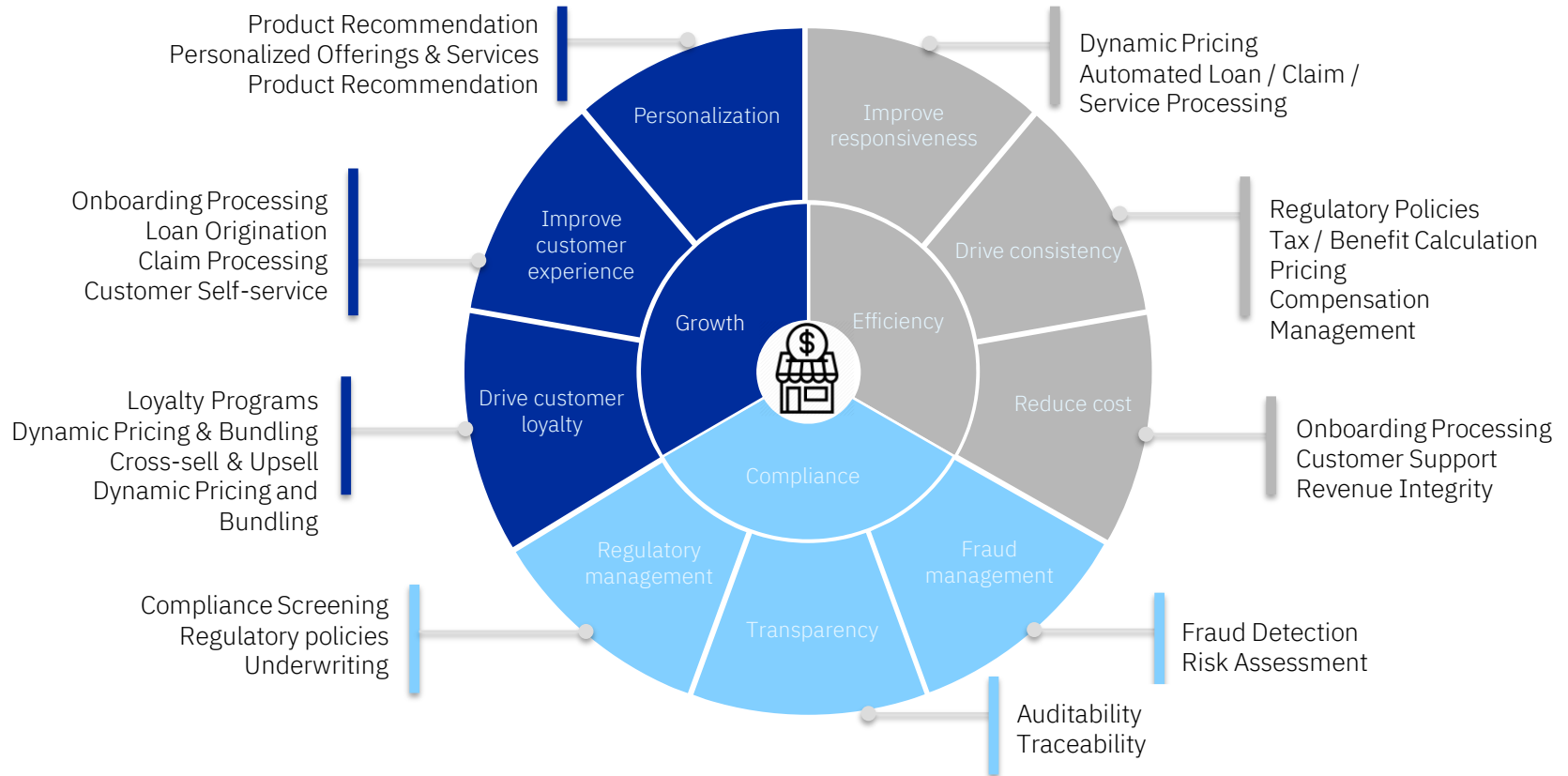
58% plan to modernize most applications in place

z/OS Modernization Strategies

- Expose services through APIs as your platform-agnostic language within the context of a hybrid cloud

- Leverage a cross-platform DevOps solutions to gain necessary speed and agility

- Modernize applications to gain business agility

  - Componentize them, build system APIs and Microservices

  - Build in agility with business rules

- Only expose existing assets as APIs if the are business relevant and agile

- Use **Operational Decision Manager for z/OS** to *optimize* your business applications

- **ODM for z/OS** is a key component in the Digital Transformation story

Business Decisions Are Everywhere

Product Recommendation
Personalized Offerings & Services
Product Recommendation

Onboarding Processing
Loan Origination
Claim Processing
Customer Self-service

Loyalty Programs
Dynamic Pricing & Bundling
Cross-sell & Upsell
Dynamic Pricing and
Bundling

Compliance Screening
Regulatory policies
Underwriting

Dynamic Pricing
Automated Loan / Claim /
Service Processing

Regulatory Policies
Tax / Benefit Calculation
Pricing
Compensation
Management

Onboarding Processing
Customer Support
Revenue Integrity

Fraud Detection
Risk Assessment

Auditability
Traceability

Personalization

Improve
customer
experience

Improve
responsiveness

Drive consistency

Drive customer
loyalty

Growth

Efficiency

Reduce cost

Compliance

Regulatory
management

Transparency

Fraud
management

Three business priorities are driving today's decisions

Adapt to Market Changes Quickly

- Need to scale personalization and deep engagement with customers
- Increasing number of data sources required to make decisions

Increase Operational Efficiency

- More pressure for decisions that drive growth, retention and reduce costs
- Imperative to streamline and reuse common cases

Compliance and Transparency

- Increasing regulatory constraints
- Need to develop trusted customer relationships
- Need for audit and traceability

Why Externalize and Manage Through Business Decisions

Traditional approach is programming-based

Rules are locked in processes and applications

Complex to handle

Business Applications

If Customer-default = "yes" then reject the loan -application

Business logic is owned by IT

A simple change can impact multiple rules and processes

IT is required

Can require years and costs millions

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Decision management systems externalize the decision logic from applications

Complex to handle

Business Applications

Rule
Rule
Rule
Rule
Rule

IT

Analyst   Business

Enables fast, safe changes

Ensures performance and scalability

Business rules can be blended with ML-based predictions

IBM Operational Decision Manager for z/OS

Manages and automates business rules to ensure operational decisions are:

- Easy to author and change
- Executed in real time at high scale
- Consistent with documented policies and regulations

ODM

Rules written in natural business language	Decouples business rules from applications	Built-in reporting, auditing & governance
Enables business to realize business policies, practices & regulations in natural language instead of code	Enables business rules to be changed daily or weekly without having to redeploy the entire application	Lightweight governance model helps ensure the right rules go into production
Transparency	**Agility**	**Auditability**

AXA BELGIUM

Redeployed pricing logic from hard-coded legacy apps to business-managed Operational Decision Manager in 6 months.

First National Bank

Gained a central point of control for the creation and dissemination of business rules on z/OS. The solution delivers 40-times faster processing to support rapid decision making.

Large Northeast US Financial Services Company

Challenges:

- Current application change request is a 9 month process from initial request to production roll-out
- Number and frequency of changes increasing exponentially (regulation and competitive threat)
- System z skills declining or at risk
- Current rules methodology (home grown table driven) cumbersome and not auditable

Benefits:

- Implemented Business Rules for z/OS to replace home grown tool
- Deployed in support of Online systems and Batch
- Reduced Development life cycle due to new rule testing methodology from 6 months to 2 weeks
- Reduced overall implementation time from 9 months to 6 weeks (integration test 4 weeks)
- Seeing a HUGE reduction in overall cost
- Increased top line revenue, more responsive to the business and customer

Project Approach

Designed a decision management solution that conformed to government regulatory requirements

- Integrate the Java batch capabilities of Compute Grid and the Decision Management capabilities of Business Rules for z/OS

- Running decision engine in parallel to original application code

- Looking for differences and exceptions

European Insurance Company

Challenges:

- Increase flexibility in pricing & underwriting to allow quick changes in response to evolving market conditions
- Reduce time to market for new products
- Reinforce cross-selling and up-selling capabilities as a key element to increase average premium
- Integrate the end-client together with the broker and back-office as part of the Digital Strategy

Benefits:

- Started with a cloud solution based on IBM PureApplication Service on SoftLayer and ODM
- The cloud environment was ready in 2 days for the client to start working immediately!
- ODM zRES then deployed on Mainframe to enable the same rules to be called from IMS back-office.
- The project started in June and the first Eligibility Rules application went in production in October.

Project Approach

- Designed a decision management solution using ODM on the cloud

- Enabled that solution for ODM zRES called from IMS

- Sharing rules between mainframe and the cloud.

- The project earned a IBM Benelux Excellence Award.

Full Decision Lifecycle Management

Non-technical users can start rapidly, learn easily, and collaborate

Capture

Manage

Secure and govern

ODM

Monitor

Automate

Monitor decisions outcome in real time

Execute and trace decisions with precision

How ODM Works

Capture → Manage → Automate → Monitor (cycle)

- Discover, model & validate
- Graphical environment
- Guided experience
- Leverages Principals of Decision Model and Notation (DMN™)
- Team collaboration tools

Start quickly, learn easily, and collaborate

Natural Language


```
if
    the driver has completed drivers ed course
    and the number of accidents the driver has been involved is 0
then
    add a 2 % discount to 'Auto Quote Response' , reason: "Good Driver Discount" ;
```

Decision Table

In-place validation

Rule Flows

Decision Models

Guided experience

Author rules with your natural business rule language

- Point and click editing
- Configurable business terms
- Personalized conditions and actions
- Powerful constructs to deal with complex models
- Localized in 14 languages

- Same business language shown in decision tables

Author rules with decision tables

Loan Validation Service > main

rate (v1.1)

Download as Excel | Import Excel File | Undo | Redo | Preconditions | Details | Save | Cancel

	Loan duration (y)		Loan to Value		Yearly interest rate
	Min	Max	Min	Max	
2	< 5		0.7	0.8	0.052
3	< 5		0.8	0.9	0.053
4	< 5		≥ 0.9		0.055
5	5	8	0	0.7	0.056
6	5	8	0.7	0.8	0.057
7	5	8	0.8	0.9	0.058
8	5	8	≥ 0.9		0.059
9	9	12	0	0.7	0.06
10	9	12	0.7	0.8	0.061
11	9	12	0.8	0.9	0.062
12	9	12	≥ 0.9		0.063
13	13	17	0	0.7	0.064
14	13	17	0.7	0.8	0.065
15	13	17	0.8	0.9	0.066
16	13	17	≥ 0.9		0.067
17	18	25	0	0.7	0.068

Search: 17

- View and edit large tables
- Filter
- Sort by columns
- Search by keyword
- Import / Export to Excel
- Check gaps / overlaps
- Format cells

How ODM Works

Capture

Manage

Monitor

Automate

Simulation

Governance

Release management, versioning

– Business environment
– Testing and simulation
– Built in governance framework
– Release management, versioning

Secured and traceable

Simple Access to the Decision Repository

Intelligent Rule Editors

Intuitive Timeline for History Visualization

View and revert to a specific rule version in one click

Comments document each new release

Side-by-side comparison

Test Suites

- Test reports gives global and detailed test results for each test suite execution from the Business Console

Successful scenarios

Side-by Side comparison

Detailed tests results

Execution details

How ODM Works

Capture — Manage — Automate — Monitor

- Administration Environment
- Optimized algorithms
- Near real time decision making
- Scalable for large projects

Execute and trace decisions with speed and consistency

Rule Execution Server Console

Execution Statistics

ODM Runtime Options for z/OS

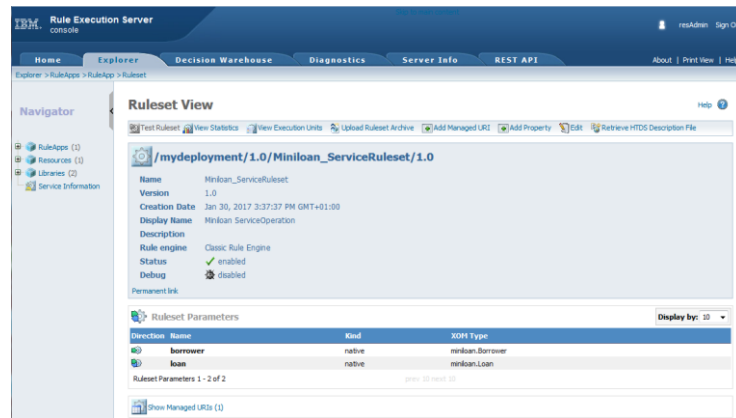- Decisions can be invoked from existing CICS, batch and IMS applications

- Runtime support for COBOL and PL/I data types

- Flexible runtime deployment to fit any System z environment:

    - Deployed on WebSphere Liberty Server for z/OS

    - Deployed as optimized standalone address space

    - Deployed in CICS TS Liberty environment

    - Deployed local to the batch address space

COBOL Programming API

1. Connect to zRule Execution Server

```
call 'HBRCONN'
   using HBRA-CONN-AREA
```

2. Populate parameter data

```
MOVE "borrower" TO
HBRA-RA-PARAMETER-NAME(1)
```
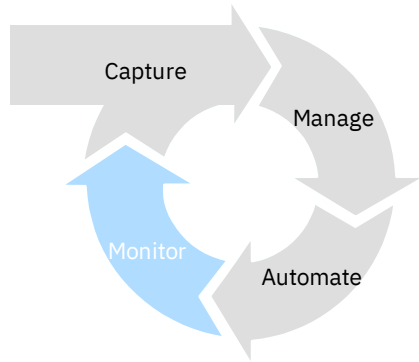
3. Execute the rules

```
call 'HBRRULE'
   using HBRA-CONN-AREA
IF HBRA-CONN-COMPLETION-CODE = HBR-CC-OK
THEN
```

4. Disconnect from zRule Execution Server

```
call 'HBRDISC'
   using HBRA-CONN-AREA
```

```
1.    CALL 'HBRCONN' USING HBRA-CONN-AREA.

      IF HBRA-CONN-COMPLETION-CODE = HBR-CC-OK

2.    MOVE ALL SPACES          TO BORROWER LOAN
      MOVE ALL LOW-VALUES       TO HBRA-RA-PARMETERS
      MOVE "/my_deployment/my_operation"
      TO HBRA-CONN-RULEAPP-PATH

      MOVE LENGTH OF BORROWER   TO HBRA-RA-DATA-LENGTH(1)
      MOVE "borrower"           TO HBRA-RA-PARAMETER-NAME(1)
      SET HBRA-RA-DATA-ADDRESS(1)
      TO ADDRESS OF BORROWER

      MOVE LENGTH OF LOAN       TO HBRA-RA-DATA-LENGTH(2)
      MULTIPLY LENGTH OF MESSAGES
      BY 99
      GIVING WS-MAX-MESSAGE-LEN
      ADD  WS-MAX-MESSAGE-LEN   TO HBRA-RA-DATA-LENGTH(2)
      MOVE "loan"               TO HBRA-RA-PARAMETER-NAME(2)
      SET  HBRA-RA-DATA-ADDRESS(2)
      TO ADDRESS OF LOAN

3.    DISPLAY ' -- Invoking rules in rule execution server'

      CALL 'HBRRULE' USING HBRA-CONN-AREA

      DISPLAY ' --'
      ' name->'            NAME
      ' -loan amount->'  AMOUNT
      ' -approved->'     APPROVED

4.    CALL 'HBRDISC' USING HBRA-CONN-AREA.
```
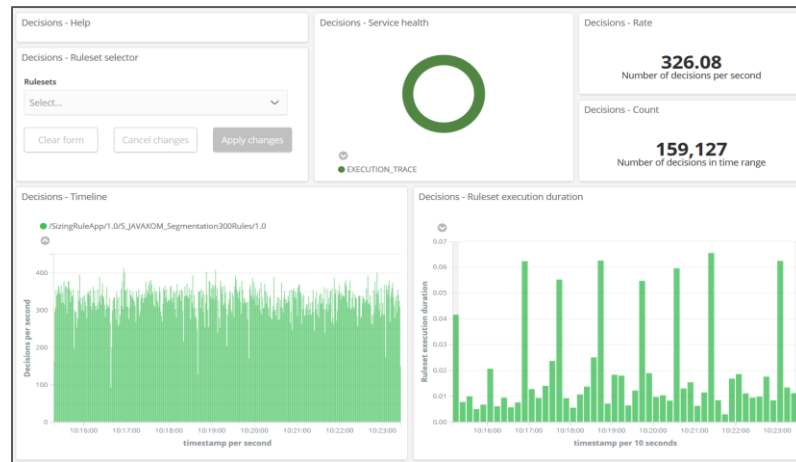
How ODM Works

Operations dashboard for decision execution monitoring (System data)

Custom business data dashboard (Business data)

- – Available through **Business Automation Insights** *
- – Monitoring in Real time
- – In production rules
- – System and business data monitoring

Monitors decision outcomes in real time

(*) ***Business Automation Insights*** *is a capability delivered in IBM Cloud Pak for Automation*

Organizations create efficiencies, improve customer outcomes, and reduce risk

Improve customer experience	Create efficiencies	Increase productivity	Maximize patient outcomes
300% increase	**80%** reduction	**20%** more claims	**50+** liver transplants
In throughput of regulated items combined with a 200% decrease in customer wait times	Reduction in number of loan applications that must be manually reviewed	Each day and on-board new clients in hours rather than days	NHSBT streamlines delivery and maximizes utilization of organ allocation schemes
BROWNELLS®	**PNC BANK**	**Control€xpert**	**NHS**

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Decision management system

Complex to handle

Business Applications

Rule
Rule
Rule
Rule
Rule

IT
Analyst   Business

A

B

Discovering Business Rules

Mark Indermaur

Product Manager, IBM ADDI

Application Discover and Delivery Intelligence

ADDI offers a modern experience that attracts and onboards new developers faster

Faster time to market with higher quality

– Quickly discover enterprise-wide application insights for COBOL, PL/I, Java™, Assembler, and Natural

– Impact analysis

– Hogan® Core Banking, and CAMS™ applications

Identify Business Rule and API candidates

– Accelerate hybrid cloud application development and respond to market changes

Accelerate data modernization

– Discover and virtualize non-relational data on Z and virtualize with ADDI and IBM Data Virtualization Manager

How ADDI Works with ODM

IBM

Capture

Manage

Automate

Monitor

Analyze source code

Explore keywords

Rank keywords

– Web UI for analysts and developers
– Analyze source code and documentation
– Discover business terms top-down or bottom-up
– Gain keyword usage statistics and affinity analysis
– Create business rule packages with code snippets

Collaborate to discover business terms and rules in Cobol applications

Catalog business terms

Create business rule packages

Demo

Rami Katan

STSM, Chief Architect for zDevOps AI & ML Systems

ADDI Demo

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Rule
Rule
Rule

IT

Analyst   Business

Enables fast, safe changes

Ensures performance and scalability

Business rules can be blended with ML-based predictions

Why choose Operational Decision Manager?

4 out of every 5
Top 5 WW Retailers

60%
Top 20 WW Banks

60%
Top 5 WW Insurances

2000+
Managed projects

66
Fortune 200

800+
Business Partners

Hundreds
ODM consultants

Learn more about ODM and ADDI on Z

Read

- ODM Website: https://www.ibm.com/products/operational-decision-manager
- ADDI Website: www.ibm.com/products/app-discovery-and-delivery-intelligence
- The Forrester Wave™: Digital Decisioning Platforms, Q4 2020
- Forrester report: Total Economic Impact of ADDI

Try

- ODM Trial on Z
- ADDI Trial on Z

Attend

- ADDI Webinar: Groupama modernizes IBM Z applications faster and with confidence March 23, 12pm ET
- ODM Webinar: Make smarter decisions: Apply intelligence to your Z applications with digital decisioning March 29, 11am ET
- IBM Z Day virtual conference | April 5, 10am-6:30pm ET