

Visual Rules Suite

Rule-based Integration –
Tools and Platforms Based on Mature Technology

Bosch Software Innovations



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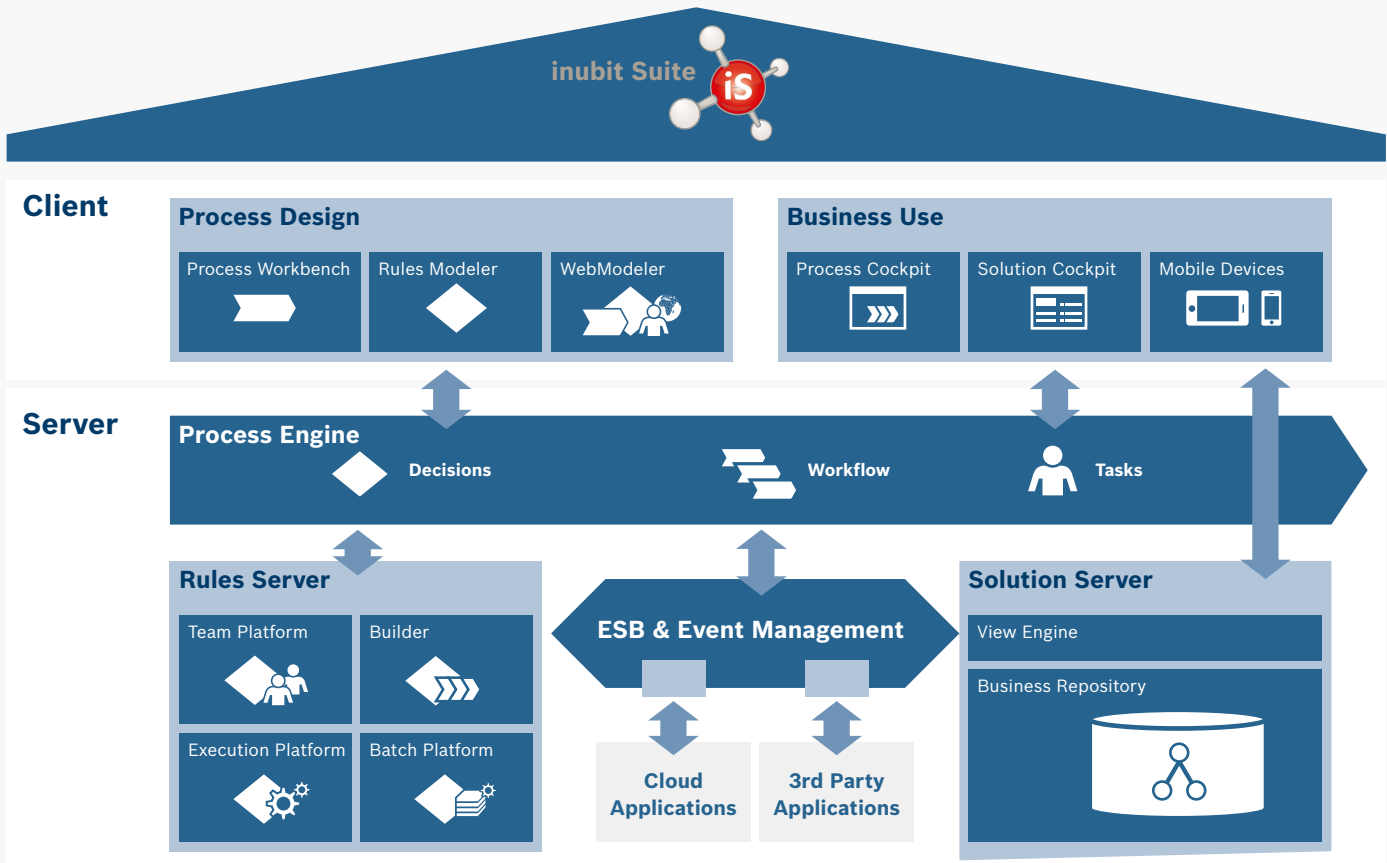


Rule-based Integration

The Rule-based Integration concept establishes rules as core elements of software applications and regulates their integration at enterprise level.

Consistently applying rules to all parts of a system – distributed or not – provides corporate flexibility and agility. Rules help to quickly adapt business processes to the market and strategic decisions.

The Visual Rules Suite consistently delivers when it comes to the Rule-based Integration concept. Its components can be seamlessly integrated in existing IT infrastructure and blend in with existing applications for robust services that are available enterprise-wide. Existing resources are put to good use while transparently integrating required data, applications, and processes. Businesspeople can manage their business rules themselves and thus are able to automate a huge number of operational decisions – without programming knowledge.



Business Rules and Process Management

Linking Business Rules Management (BRM) and Business Process Management (BPM) is now standard in companies that value agile processes. The combined product offering of Bosch Software Innovations and inubit provides high quality software products for both areas

With the combination of Business Rules Management (BRM) by Visual Rules Suite and Business Process Management (BPM) by inubit Suite companies automate the complex decisions in their business processes:

- ▶ Within process steps to fully automate them
- ▶ For the transition between individual steps
- ▶ As intelligent generators of events that trigger a process based on rules



Application Scenarios

Business Process Management

- ▶ Process automation
- ▶ Electronic Data exchange
- ▶ Monitoring/ Reporting

Business Intelligence

- ▶ Early-Warning-System
- ▶ Calculation of KPIs
- ▶ Balanced Scorecards

CRM

- ▶ Campaign management
- ▶ Customer profiling
- ▶ Portfolio analysis

Financial Control

- ▶ Accounting
- ▶ Pricing

Compliance

- ▶ Risk rating (BASEL II, SOX, Solvency)
- ▶ Embargo monitoring
- ▶ Anti-money laundering
- ▶ Detection of market abuse
- ▶ Insider trading and fraud detection

Quality Management

- ▶ Six Sigma

Supply Chain Management

- ▶ Disposition
- ▶ Shipping track and trace

Software Development

- ▶ Data Migration
- ▶ Legacy Modernization

Others

- ▶ Annuity computation
- ▶ Machine control and diagnostics

Graphical Modeling of Rules, Events & States

The graphical modeling of business rules, events, and states ensures that business logic is kept separate from the technical side of the application. Business experts can simply and easily author and revise complex business logic themselves.

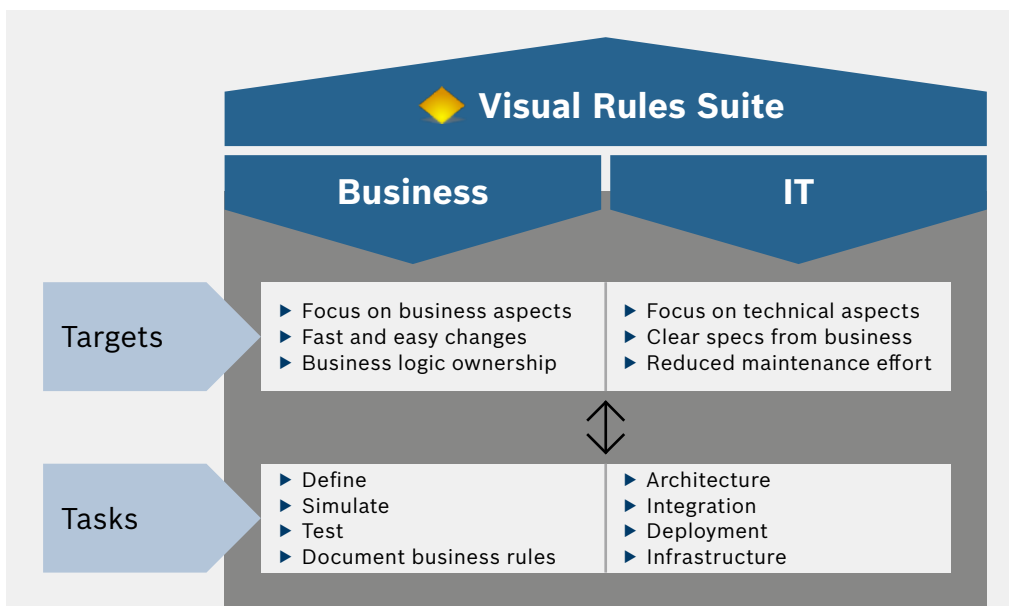
Event-Driven Applications

Based on a Dynamic Framework

Robust components for the efficient creation of rule-based and process-oriented applications make up a technical framework for business components.

Distributed Systems Integration via Enterprise Service Bus and Event Management

The service-oriented communications infrastructure connects backend systems and business services in distributed systems in both client/server environments and in batch operation. Business processes are mapped to the infrastructure via an abstraction layer. They offer transparent overview of what is implemented.



Business/IT Alignment

As a unique collaboration platform, Visual Rules has proven to reduce development time and costs by 50% and maintenance by 90%. This is made possible by Visual Rules' support for clear separation of tasks between business and IT. This separation creates new levels of cooperation and innovation within teams, departments, and the enterprise.

Managing Rules, Events, and States Within Their Lifecycle

Core Concepts

- ▶ Premier graphical modeling of rules, events, and states
- ▶ Code generation for maximum runtime performance
- ▶ Entire rule lifecycle supported
- ▶ Continuous, up-to-date rule documentation
- ▶ Test-driven development
- ▶ Advanced reusability
- ▶ Rule sharing through centralized repositories
- ▶ Comprehensive dependency management and analysis
- ▶ Detailed auditability of rule execution

Visual Rules supports both business and IT during the entire iterative process of creating, optimizing and maintaining business rules. All steps of this round-trip rule lifecycle are performed with intuitive graphical tools provided by Visual Rules components that integrate seamlessly and that can be selected according to your individual needs.

Modeling

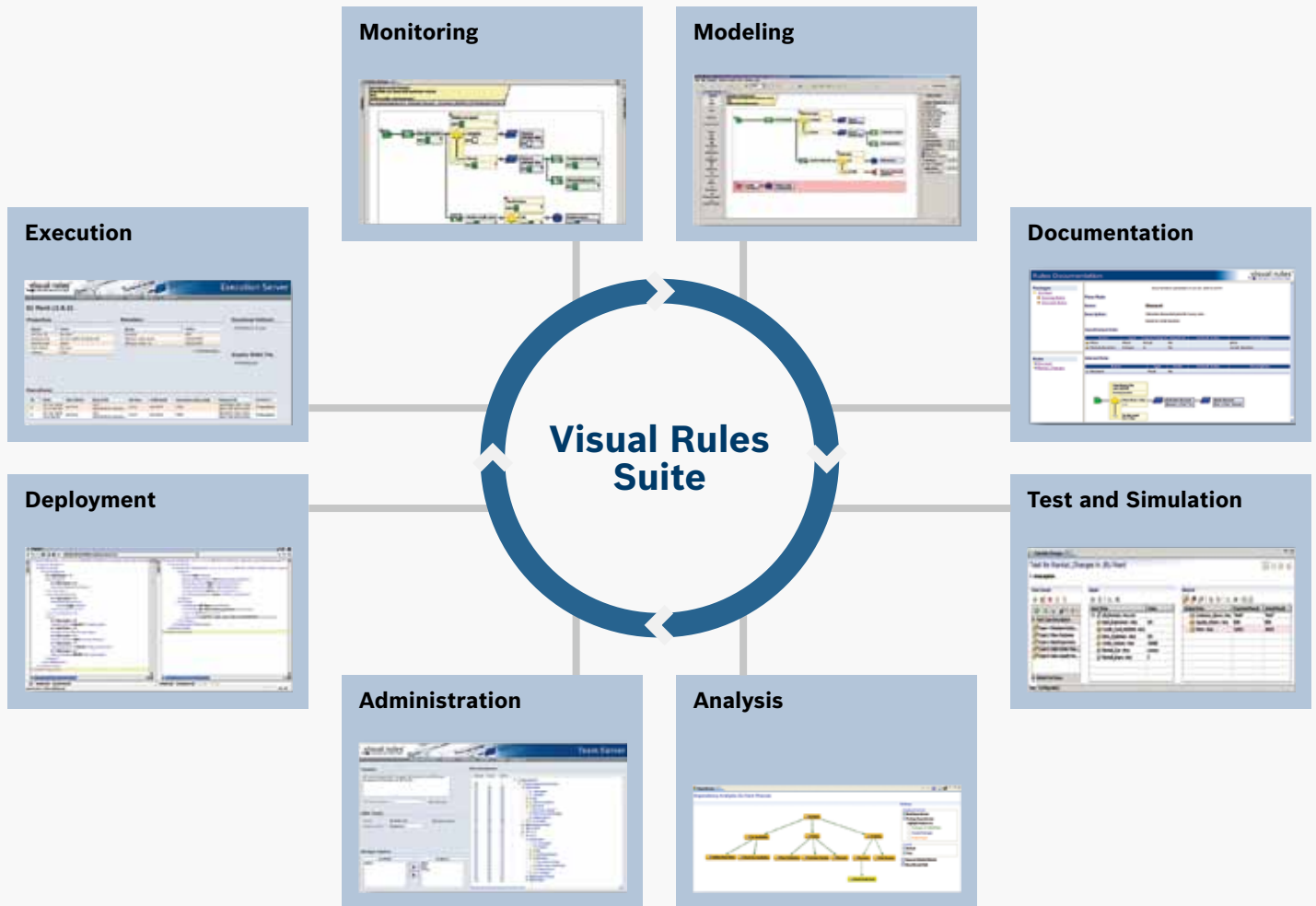
Visual Rules' unique graphical modeling approach is especially intuitive. Unambiguous modeling of rules as either flow rules or decision tables in Visual Rules Modeler or Web Modeler significantly increases the transparency of complex rules.

Documentation

Once you have modeled the rules, Visual Rules automatically creates a comprehensive graphical documentation from the model, comprising both data model and rules.

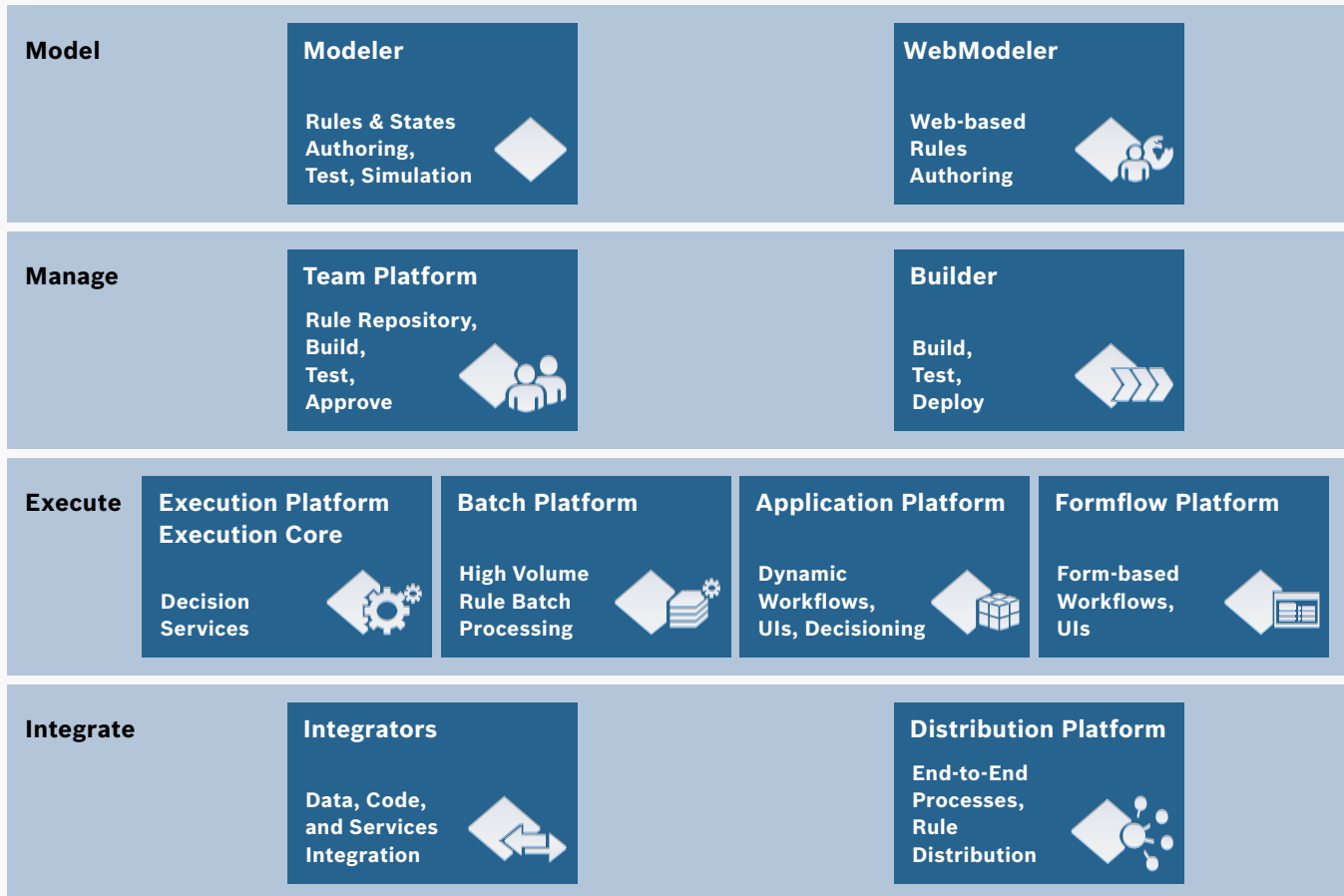
Testing and Simulation

Special tools enable businesspeople to define test cases and test suites, as well as track execution statistics, test results, and deviations to expected results. For detailed insight into rule processing, rule authors can utilize graphical debugging. Visual Rules' test-driven approach ensures that only completely tested and functionally correct rules enter production. Testing can be fully automated or performed manually, such as part of ad hoc simulations.



Visual Rules Suite

Tools & Platforms



Visual Rules Suite

Visual Rules is fully scalable and can be applied to any size of projects, from single applications up to full-scale enterprise decision management solutions. As opposed to other BRM Platforms, Visual Rules can be applied to all kinds of architectures – from embedded applications in appliances and mobile devices to enterprise applications in any industry. Visual Rules also seamlessly integrates with a wide range of application areas such as Business Intelligence, Business Process Management, and Service Oriented Architectures.

In addition to Visual Rules technology, you can rely on the methodology and professional services from Bosch which enable you to autonomously master business rules within minimal time, after only a brief training. This includes knowledge transfer of best practices extracted from hundreds of successful projects.

Typical Integration Scenarios

Application Integration

Rules can be integrated into any Java application, including but not limited to mobile devices, client and server applications. The rule code can be hot deployed while the application is running.

Batch Processing

This is the recommended option for efficient access to databases and data. Thus, no programming is required to implement either high-performance, rule-based real-time systems or batch processing.

Service Integration

Rules can be accessed as web service and can also be hot deployed to the Visual Rules Execution Platform. The centralized repository Visual Rules Team Platform allows rules to be integrated in enterprise decision management.

Tools

Visual Rules Modeler

- ▶ Intuitive graphical modeling of rules and states
- ▶ Integrated test and simulation management
- ▶ Detailed rule execution statistics for monitoring
- ▶ Debugging within the graphical model, single-step execution
- ▶ Generation of HTML or PDF rule documentation

Visual Rules WebModeler

- ▶ View, change, and publish rules using a web browser

- ▶ Collaborate in distributed teams within and outside organizations

Visual Rules Builder

- ▶ Automated generation of code and documentation, testing, and deployment
- ▶ Ant tasks and Maven plug-ins for integration into existing build and deployment processes

Visual Rules DatabaseIntegrator

- ▶ Efficient access to relational databases, including transaction control
- ▶ Provides persistence layer option

- ▶ Easy generation of executable programs for rule-based analysis and processing of any data (e.g., in a data warehouse)

Visual Rules Formflow Platform

- ▶ Application platform for form-based workflows
- ▶ Execution and managing of human-centric processes and UIs
- ▶ Rule execution capabilities fully integrated

Platforms

Visual Rules Team Platform

- ▶ Centralized rule repository for versioning and auditability of rules and documents with audit log
- ▶ User- and team-based access control and automated locking
- ▶ Team coordination with easy reuse of rules and data models
- ▶ Administration via web console

Visual Rules Execution Platform

- ▶ Hot deployment capability for replacing and adding rules without interruption
- ▶ Runtime versioning of rules and execution statistics

- ▶ Dynamic request routing and metadata support
- ▶ Deployment of rules as web services

Visual Rules Execution Core

- ▶ Designed to support rule management and execution
- ▶ Integratable into third-party applications (without Execution Server)

Visual Rules Batch Platform

- ▶ Designed for batch processing scenarios of any kind
- ▶ Bulk data processing with regards to performance, transparency, and business/IT alignment

- ▶ Identical rules for interactive and non-interactive scenarios

Visual Rules Application Platform

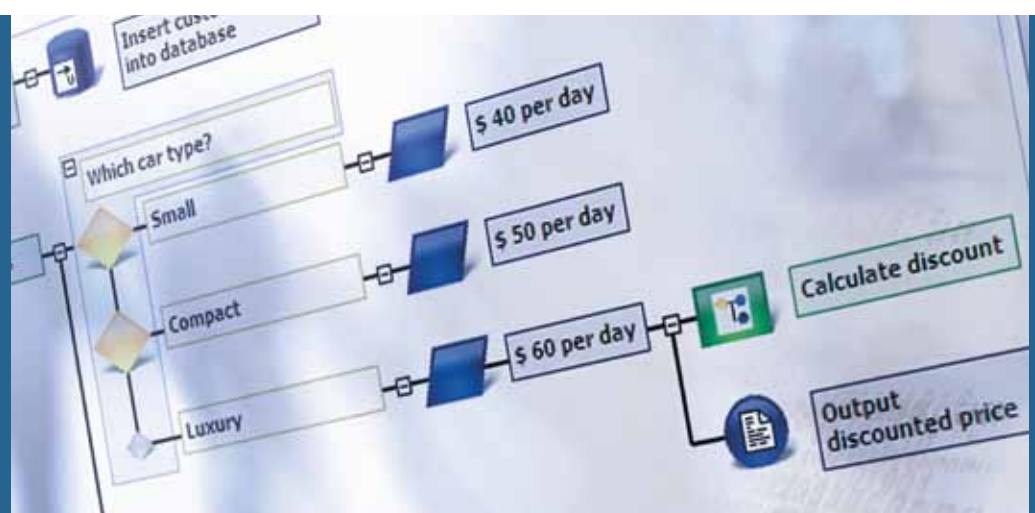
- ▶ Platform to build rule-based, process-oriented applications
- ▶ Modeling of rules for decision, presentation, workflow, and integration logic
- ▶ Components for user administration, runtime versioning, and monitoring of execution

Visual Rules Distribution Platform

- ▶ Rules for remote systems
- ▶ Smart off-line mode and failure strategies
- ▶ Platform enabling the "Internet of Things"

Visual Rules is designed for integration. With its lightweight architecture and highly configurable components, it integrates well into many IT architectures.

Additionally, Visual Rules' design-time components smoothly integrate into many development environments (e.g., Eclipse-based) and development processes.



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Bosch Software Innovations GmbH, the software and systems house of the Bosch Group, globally designs, develops and operates innovative software and system solutions for the Internet of Things and Services.

In this environment, we focus specifically in the areas of connected mobility, connected energy and facility management, connected industry and enterprises, and connected healthcare. With our core products, "Visual Rules Suite" for Business Rules Management and the "inubit Suite" for Business Process Management, we comprehensively support our customers and partners in developing and implementing new markets and business opportunities in the Internet of Things by linking functions and processes, services and devices. Bosch Software Innovations provides individual, customized solutions for financial institutions, financial service providers and industrial companies.

With about 450 employees currently, Bosch Software Innovations is globally represented with locations in Immenstaad, Waiblingen and Berlin, Germany; Chicago, USA; and Singapore.

For more information, go to **www.bosch-si.com**

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more about Visual Rules.

