

INNOVATIONS *in* FINANCE

Innovations Software Technology

Secure Software Solutions for Banks and Insurance Companies

SPECIAL ISSUE Managing Credit Risks

Flexible Integration of Ratings within
the Entire Risk Management Process



**VOLKSWAGEN
BANK**
Credit Rating
as A Competitive
Advantage

INTERVIEW
with Justus Ortlepp
on Credit Rating
at Rand Merchant
Bank

**10 YEARS OF
INNOVATIONS**
Creative & Reliable:

Innovations Software Technology GmbH
is **Bosch Software Innovations GmbH**
since **01.01.2011**





About This Issue

Basel II has spurred many banks to redesign their risk management systems so that they are more integrated and process-driven. Indeed, risk management has become a substantial competitive advantage. Now, IRBA (Internal Ratings-based Approach) offers banks another opportunity to differentiate themselves from the crowd in evaluating credit risks. Visual Rules supplies the instrument to integrate custom-tailored ratings flexibly within the entire process of risk management. We present the ideas in this special issue with the hope that they will inspire you in designing your own risk management systems and customize them per your requirements.

Sincerely,
Thomas Cotic
General Manager
Innovations Software Technology



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Who We Are

Innovations in Finance
Publication Schedule: 3 times annually
Publisher: Innovations Softwaretechnologie GmbH
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IRBA – A Competitive Advantage

Business Rules Management Systems Working with Basel II: What Strengths Does Rule-Based Risk Modeling Offer?

Basel II, which became obligatory in the EU with national implementation at the start of 2007, has meant a fundamental reform in how equity capital requirements set by regulatory authorities are calculated.

Basel II aims to ensure appropriate equity capital levels in financial institutions and to construct uniform competitive conditions for both lending and trading in loans.

One important goal in this process is aligning capital requirements set by supervisory authorities more closely with actual risks and thus to more precisely approach the equity capital requirements calculated internally by the banks themselves. This capital requirements alignment to risks should then reduce what is often called the regulatory arbitrage. For this first pillar of Basel II's three pillars, the calculation of

minimum capital requirements for credit risks, institutions may choose among three approaches: a standard approach or one of two approaches based on internal ratings (basic and advanced IRB approaches).

The standard approach involves the application of external ratings from a recognized rating agency. This rating from agencies offers the advantage of an external perspective but entails higher operating costs. The current crisis in global financial markets painfully illustrates that even rating agencies can err. Experts note that the current crisis has its origins in US markets, where a regulatory administration similar to Basel II only becomes mandatory on January 2009. Though there are many other complex issues in the US subprime mortgage crisis, clearly more effective and transparent credit

rating and reporting will be imperative moving forward.

As an alternative to the standard approach, banks may choose the IRB (internal ratings-based) approach. The internal rating of the bank itself is based on an assessment of both quantitative and qualitative factors – from financial and accounting to assessment of management abilities and the particular industry environment. This assessment demands transparency, credibility and most of all continuous information and budget figures. Along with the basic IRB approach, which concentrates on the internal estimate of probability of default (PD), the advanced approach encompasses additional risk elements on the basis of internal assessments. Internal ratings solutions, whether simple or advanced, must pass a suitability audit by

Rating Agencies – Pro and Con

IRBA – Another Option



the respective national supervisory body before they can be implemented.

Many experts recommend the IRBA because it represents an important step in a high-quality risk management system – the

Active Risk Management

bank can measure risks precisely and better price them at the portfolio level, which in turn provides a clear competitive advantage. In addition, banks also have begun to value IRBA as a central component in active risk management.

Martin Müller, chairman of the board of Landesbank Berlin AG, values IRB certification of his bank as the culmination of successful restructuring. “We have under-

gone an extensive reorganization of our credit risk management system in recent years and, for the Landesbank Berlin and the Berliner Sparkasse (Germany), we have achieved a very high standard. We’re very pleased that BaFin, the German Financial Supervisory Authority, has now rewarded our efforts.”

Risk evaluation using IRBA is a prime issue for the technical approach offered by Business Rules Management (BRM) – the

Risk Evaluation with BRM

complex know-how of business analysts must be captured with traceability and integrated into the process of corporate evaluation.

“Here, those Business Rules Management systems that capture business logic in the form of graphical rule trees, as Visual Rules does, have a significant advantage. People think in contexts and processes. They can’t get an overview of thousands of separate individual rules but they can when risk models are documented as a rule tree,” says Dirk Urbansky, head of sales at Innovations, which has made quite a name for itself in this field.

“The business area retains control of the content because it can maintain and enhance business logic itself, with minimal support from IT.”

With the IRB approach, business logic corresponds to the assessment of individual risk components, for example the assessment of Probability of Default (PD), Loss Given Default (LGD) and Exposure at Default (EAD), on the basis of a whole range of hard and soft facts. Executable code is generated from the risk models, code that is then used on a daily basis in the operational rating application by the credit analysts.

IRBA opens up new opportunities for those banks that have invested a great deal of care in risk evaluation and have become convinced of the superiority of their own custom risk evaluation over the standard approach.

Application of internal ratings models puts greater demands on the transparent modeling of rating logic and requires unlimited traceability of rating results – two challenges that a Business Rules Management system is best qualified to meet. Most importantly, the rating models remain flexible and easy to maintain even after they are implemented because, while most institutions that have chosen IRBA have implemented their rating procedure, adjustment of those rating models is an ongoing process. The systematic, transparent, and audit-proof optimization of models is one of the unique strengths of the Business Rules Management approach. ■

Stefanie Kühn



The complex know-how of business analysts must be captured with traceability and integrated into the process of corporate evaluation.

Rand Merchant Bank

“... a very positive impact on the way credit rating is done...”

Innovations asked Justus Ortlepp, responsible for Business Analysis at Rand Merchant Bank, South Africa, about his experience with the development and operation of their rule-based credit risk rating solution. Rand Merchant Bank (RMB) is the investment banking arm of First Rand, one of the largest JSE-listed financial services groups in South Africa.

Innovations:

You chose Innovations Software Technology as your solution partner. What was the decisive factor?

Justus Ortlepp:

When we were looking for a platform to host our credit rating models, our main concerns were the ease with which we could transfer models from MS Excel to the new platform and also the accessibility of the platform from other systems in our environment. Innovations' Visual Rules product scored highly in both of these areas. From a model development perspective Visual Rules is well structured, flexible and easy to use. We also found Visual Rules to have an excellent technical architecture fit within our technical environment and because the Visual Rules technical architecture is very open we were confident that Visual Rules would also meet future integration requirements.

Innovations:

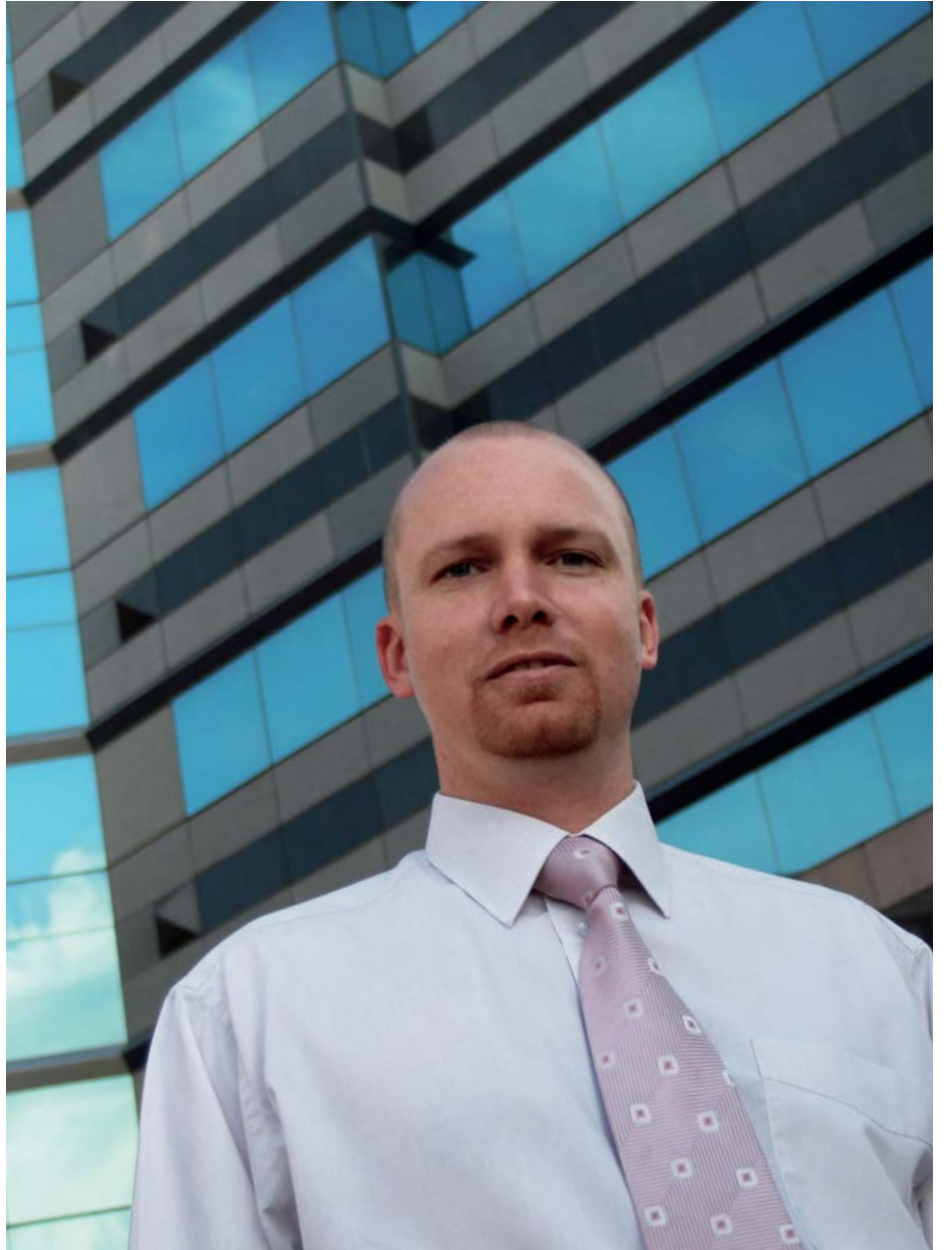
What special requirements did you face for the implementation of your solution for credit risk management?

Justus Ortlepp:

Visual Rules does not come packaged with a native front-end that allows users to interact with the models we deployed on the platform; a separate front-end had to be developed through which users could execute the models. We ultimately decided on a web-based front-end that was developed for us by Innovations according to our specifications.

Innovations:

What has been most impressive to you during the project?



Justus Ortlepp, Rand Merchant Bank.

Justus Ortlepp:

As a project team we have been very impressed with Innovations' speed of delivery and the accuracy with which they met our requirements.

Innovations:

The application has been in operation since February 2007. What has been your experience to date?

Justus Ortlepp:

The implementation of the rating models in a robust technical environment has had a very positive impact on the way credit rating is done, both from a user perspective and also from a model development perspective. The system has also made it possible to meet our regulatory obligations at an unprecedented level. ■

Corporate Rating at Volkswagen Bank

Credit Rating can be a Competitive Advantage

Core business areas at Volkswagen Financial Services AG are its fleet business with major clients and vehicle financing. In order to evaluate probability of default for its clients, dealers and fleet clients are assessed using Volkswagen's own internal rating procedure, which was implemented using an application from Innovations Software Technology. The balance sheet and corporate data required for creditworthiness evaluation are delivered to the rating platform via XI interfaces. Volkswagen Bank GmbH has applied for approval of its IRB approach.

The Volkswagen group has delivered more than 5.7 million vehicles over the past year, of which around 3.9 million were Volkswagen models and 1.3 million Audis. That means that vehicle financing represents an important instrument driving sales and market loyalty to the corporation.

Financial services are offered through VW subsidiary Volkswagen Financial Services AG, the largest automobile financial ser-

vices corporation in Europe, and by other subsidiaries, such as Volkswagen Bank GmbH and its branches, Volkswagen Leasing GmbH, Volkswagen Versicherungsdienst insurance provider, and other German and international subsidiaries.

Volkswagen Bank decided to replace its Basel II standard approach with the basic IRB approach, which means it will be able to put its vast specialized know-how to better use in this area. For the evaluation of creditworthiness in the corporate area, Volkswagen has replaced its old MS Access-based application with a Web-based Basel II rating platform. Christened CARAT (Corporate Assessment and Ratingmodel Application Administration Tool), this application has been deployed since November 2007.

Creditworthiness evaluation of the client is made through a complex rating procedure. It entails both annual report figures as well as qualitative factors, such as

future business prospects, assessment of management quality, and market and industry environments, as well as payment practices – all are drawn into the evaluation.

CARAT employs data from a variety of sources. This meant that the various suppliers of data had to be connected, and they included some who use SAP applications.

Joint use of data also required comparing data from different sources with each other for redundancy – data sets had to be assigned to each other, duplicates detected and corrected. The result is a permanent improvement in data quality that serves all users well.

The analysts at Volkswagen Financial Services AG do the research and evaluate corporate data and calculate a rating with the aid of CARAT. Every rating event is archived in the corporate Business Warehouse, including all input and output data.



MASTERDATA OVERVIEW (DEALER (UK))			
Partner Number	0000199920	Joint Liability ID	
Company Domicile		Company Name	
<div style="display: flex; justify-content: space-around; border-top: 1px solid black; border-bottom: 1px solid black;"> General Balance Qualitative Analysis Result </div>			
VALID RATING DATA			
Valid Probability Of Failure [%]	?	<input type="text" value="2.77"/>	
Valid Until Date Of Rating	?	<input type="text" value="08/01/2009"/>	

An extract from the Web-based CARAT rating application

Every analyst has personal work lists he uses to manage his rating events. The status of a rating can vary. In the simplest case, the analyst changes the status of the rating after it is finished from “draft” to “confirmed,” which means that the newly calculated rating is valid as of that date. But complex work flows with graduated status transitions also are possible, such as the release of completed ratings by an authorized superior.

In addition to automatic archival and documentation within the system, a rating report also can be generated for a completed and released rating. This report will list the most important key figures, sub-scores and rating classes.

As a rule, a rating retains its validity for twelve months. When a default event occurs, such as the customer applies for insolvency, CARAT automatically recalculates and recategorizes a default class.

In corporate business, corporate structures have a direct impact on default risk – often subsidiaries are secured through the parent corporation. These corporate linkages also will influence ratings.

An individual rating is generated for

every borrower and lease client, regardless of inheritance or corporate structure. If the borrower is part of a larger corporate structure, the individual rating will then be adjusted depending upon the degree of linkage.

Business changes, such as adapting a rating model, are implemented with the Visual Rules’ BRMS (Business Rules Management System). The completely graphical approach of Visual Rules simplifies the handling of models to such an extent that the business unit at Volkswagen Bank with responsibility for developing and enhancing rating models, can maintain and continuously develop new risk models on its own.

Changes in factors that influence the model (such as expanding it to include additional rating factors) are automatically reflected in the application interface. The result: Maximum flexibility in both the model and the interface. The business unit retains full responsibility and generally needs no assistance from IT in normal operation.

Rainer Faller, Innovations project manager, explains the advantages this offers in terms of time. “The Visual Rules architecture offers the advantage that responsibility for the

entire life cycle of a rating model, from modeling and documentation, through testing up to production, is all in the hands of the business unit. That makes it quick as well as simple.”

In addition to this flexibility that allows for easy modification of new key figures or factors, the rating platform pursuant to Basel II also remains audit-proof. Not only are the ratings archived, but the transparent versioning of rating models allows you to trace how every credit rating was developed.

After their successful introduction at Volkswagen Bank GmbH Germany, the risk models at the branch in the United Kingdom were brought in as well. Connecting the branches in Italy, Spain, Belgium and France is planned for 2008. ■

Stefanie Kühn

A whole range of balance sheet data, soft facts and complex sub-scores all go into a rating (excerpt):

- Quality and meaningfulness of the available annual financial statement
- Earnings position since the last available annual financial statement
- Equity development
- Sales prospects
- Earnings prognosis and liquidity outlook
- Payment practices
- Management quality
- Corporate structures
- Automobile market situation in the specific market area
- Dealer-specific characteristics

Rule-based Credit Evaluation

“...transfer rating method changes to the rating model without attrition losses...”

Innovations met with Dr. Eike Bick, senior consultant at d-fine GmbH, to delve into his experience implementing ruled-based systems using graphical ratings models.

Innovations:

Dr. Bick, you have a great deal of experience with many Basel II projects and advise your clients about all aspects of designing IT systems to implementing them. How would you describe the current system environments you find among your clients?

Dr. Eike Bick:

Large corporations generally have a very heterogeneous system infrastructure. In contrast, smaller companies don't face that kind of complexity but they often use local solutions based on Excel or Access that are plagued by data consistency problems. In both instances, we face a data situation that presents difficulties for efficient ratings development and implementation, and even projects whose goal is to methodically enhance the rating procedure, data processing itself can consume substantial room.

Beyond improving the method of risk measurement, for us Basel II also entails the necessary adaptation and optimization of system environments and increasing data quality – a positive side effect of any successful Basel II project that often does not receive enough attention.

Innovations:

In constructing cutting edge solutions to manage credit risks, technology plays a huge role in developing and validating rating models. How do you approach this element?

Dr. Eike Bick:

Here a distinction must be made between developing a rating process on the one side and its application and validation on the other. When developing a rating process, we typically start with a thorough economic and quantitative portfolio analysis and, on that basis, make our recommendation for appropriate development software that will graphically model rating development

methods as thoroughly as possible. There is usually a readily available statistical software package for this.

Within the development phase, we emphasize educating the client about the statistical methods that are employed. Since the development of ratings processes is often not amenable to standardization and in any case it must always be coordinated with the latest expert knowledge, thorough training can provide the client with more added value than a greater degree of automation.



Dr. Eike Bick, d-fine GmbH.

The situation poses itself quite differently on the application and validation side, which can usually be formalized and automated more readily. Here we usually recommend to our large clients in particular that they introduce a central application to implement this process. We believe it is particularly advantageous when changes to the rating process can be transferred easily to the software without needing to involve programmers. That way, risk managers responsible for ratings development can transfer changes in the rating process to the rating application without attrition losses.

But this only functions if the software is generic in a way that allows even complex calculation and decision logic to be clearly modeled graphically. Other important aspects that we value include ease of integration within the client's IT environment and Basel II-specific requirements such as adequate archival and versioning mechanisms. Here Business Rules Management Systems (BRMS) play a big role.

Innovations:

You used the Visual Rules BRMS to implement rating models at Volkswagen Bank. Can you describe your experience with that project?

Dr. Eike Bick:

The client should be the one to implement rating models in Visual Rules, so my focus was on developing the rating models. The fact that this division of labor among Innovations, d-fine and the client worked so smoothly and efficiently can certainly be traced back to the fact that Visual Rules BRMS is so intuitive and requires only minimal training on the part of the client. Another key element in that success was Innovations' expert integration of Visual Rules in the client's system environment.

Innovations:

Is Visual Rules limited to modeling rating logic?

Dr. Eike Bick:

No, not at all. Because of its generic construction, Visual Rules is not limited to ratings applications. Here, mention should be made of Visual Rules' ability to connect with routines from C++, for example. For that reason, Visual Rules can also be used to model other aspects of risk management, for one. These can include, for instance, calculating loss quotas and external routines to call up simulations of a portfolio model. This way, Visual Rules can be used to generate a complete view of the risk associated with that portfolio. It is also conceivable that Visual Rules can be used model not only business but also technical logic, such as data flows or deployment processes.

Innovations Conference for Banks

Real Life, Exciting, Well Attended

Innovations:

What clients do you typically recommend use the business rules management approach for assessing their credit risks?

Dr. Eike Bick:

Clients who are looking for a solution that can be easily serviced by the business side of their house to evaluate credit risks should seriously consider implementing a Business Rules Management System such as Visual Rules. In selecting a system, attention needs to be focused on software that has a generic construction that provides the ability to generate almost any type of body of rules and that can be intuitively managed by the business people. For us, Visual Rules is always on the short list of such solutions. ■

d-fine GmbH

With over 200 consultants, d-fine is a leading European consulting firm that specializes in quantitative and technologically sophisticated challenges in trading and risk management. d-fine provides consulting services to banks, asset managers, insurance companies, and other industries in the construction of their trading, credit and risk management systems from A to Z – from the first idea through to professional implementation of the solution, from mathematical financial models through to real-time interfaces, from plain vanilla lending to exotic derivatives, from rating models to portfolio management.

The Innovations Conference for Banks, now in its fourth year, was held in Zurich. Imaginatively designed and well received, it has already become something of a tradition to many who attend.

One unique feature of this event is the real-life information it presents. Innovations clients report very personally and directly on their experience in joint projects with Innovations and most importantly about the operational deployment of solutions. They provide first-hand information about “what can it do?” These are invaluable assessments that are simply not available anywhere else.

At the last Innovations Conference in October 2007, Martin Baumann, head of management support for private banking, gave a vivid report on the successes in client management at Bank Vontobel and about another topic that others often try to avoid – the increase in sales efficiency in private banking. You could hear a pin drop during his presentation as participants, numbering around 50, listened intently.

On the topic of credit risk management, Florian Graßhoff and André Reckhemke of Volkswagen Bank described their credit-worthiness review of corporate clients¹. Their application was successfully deployed in November 2007.

Dr. Monika Roth, attorney, professor and judge, delved into an issue particularly close to her – corporate governance or, as she put it, “from the corner office to the ground staff.” Then Sven Feddersen of Innovations got very practical about how that ground staff can find support on the issue of employee trading. Innovations’ MAID product enables documentation of potential conflicts of interest and systematic analysis of trading transactions based on relevant, carefully designed scenarios.

Walter Pitz, general manager at Innovations, showed just what the new compliance suite can do. You’ll read more about this compliance module in the next issue of Finance Magazine.



Time for conversation at the Innovations Conference for Banks.

The date of the next conference in the autumn of 2008 will be announced in our next **Preview of 2008** issue.

Send an email at bankentag@innovations.de and we will let you know directly when Innovations Conference for Banks 2008 will be held and what the agenda will be. ■

¹ You can read more about the CARAT project on p. 6 of this issue.

Innovations Software Technology

The Company Is Its Employees

Innovations has grown from an initial 6 to more than one hundred employees, and fourteen of the sixteen employees on board during that first year are still with us.

Innovations was founded by 6 shareholders in August 1997, and all are still with the company. Just like those loyal employees from the earliest days, almost all the staff from the first fiscal year are still on board. Along with the technically and intellectually challenging projects they work on, this extremely low turnover can be credited to

Good Working Conditions

good working conditions and an outstanding working environment that encourages relaxed teamwork.

Innovations has built an outstanding reputation with its superior project work and the Visual Rules Business Rules software. This service provider for cutting edge IT solutions works with clients around the globe, primarily in the financial industry.

Innovations is particularly proud of the loyalty and friendship of its first clients. To give just two examples, Innovations has worked on various projects for LGT Bank in Liechtenstein and the German retail gi-

ant REWE for more than nine years. These long-lasting relationships are based first and foremost on the reliable expertise of our staff, who truly enjoy understanding the unique challenges facing each client and working together with them to develop just the right solution to meet those challenges. The power of innovation combined with expertise and plain hard work – that's the foundation for successful projects.

Thanks to all our staff for their commitment and thanks to their partners and families for their patience – and certainly not last to our clients, who give us the privilege of entrusting their business to us. ■



We Are Innovations

“... I found the right place for myself at Innovations”

Rainer Faller (32), Project Manager

“I’ve been with Innovations since 2001 and am onsite with clients a great deal of the time. I enjoy the chance to be on the cutting edge of technology and, because I work closely with our clients, always having a view to their practical challenges and needs as well.”

Monika Nickel (49), Bookkeeping

“I have been working here since 2001 and am responsible for bookkeeping. I like the fact that our company is on solid financial footing – and our services are multifaceted and innovative.”

Volker Großmann (38), Shareholder and Head of Visual Rules Product Development

“For me, it’s been exciting to watch developments from day one, when Innovations was founded – all of us in one office with lots of ideas but no clients – to today’s company. A lot has changed over the years. But we had the foundational concept from the beginning that is reflected today in Visual Rules: create the ability to integrate dynamic knowledge easily and quickly in software systems.”

Sebastian Fandrich (25), System Technology

“I wrote my degree thesis here at Innovations and I really enjoyed the atmosphere so I decided to stay. In systems technology, we see ourselves as service providers for the Innovations staff, and sometimes that means we work under a lot of time pressure. I like the fact that we get around within the company and get to work with a lot of other staff.”

Helena Burghardt (26), Marketing

“I studied media IT in college and found the right place for me here at Innovations. I love the topics Innovations works on and I enjoy making them intelligible and meaningful for others so they can see how important they are too.”

Melanie Maier (26), Professional Services

“I trained in business IT and came to Innovations in 2007. I like the fact that I can use my knowledge while working closely with clients so I can continue to learn. That gives me the opportunity to put my strengths to work together with other people for optimal results.”

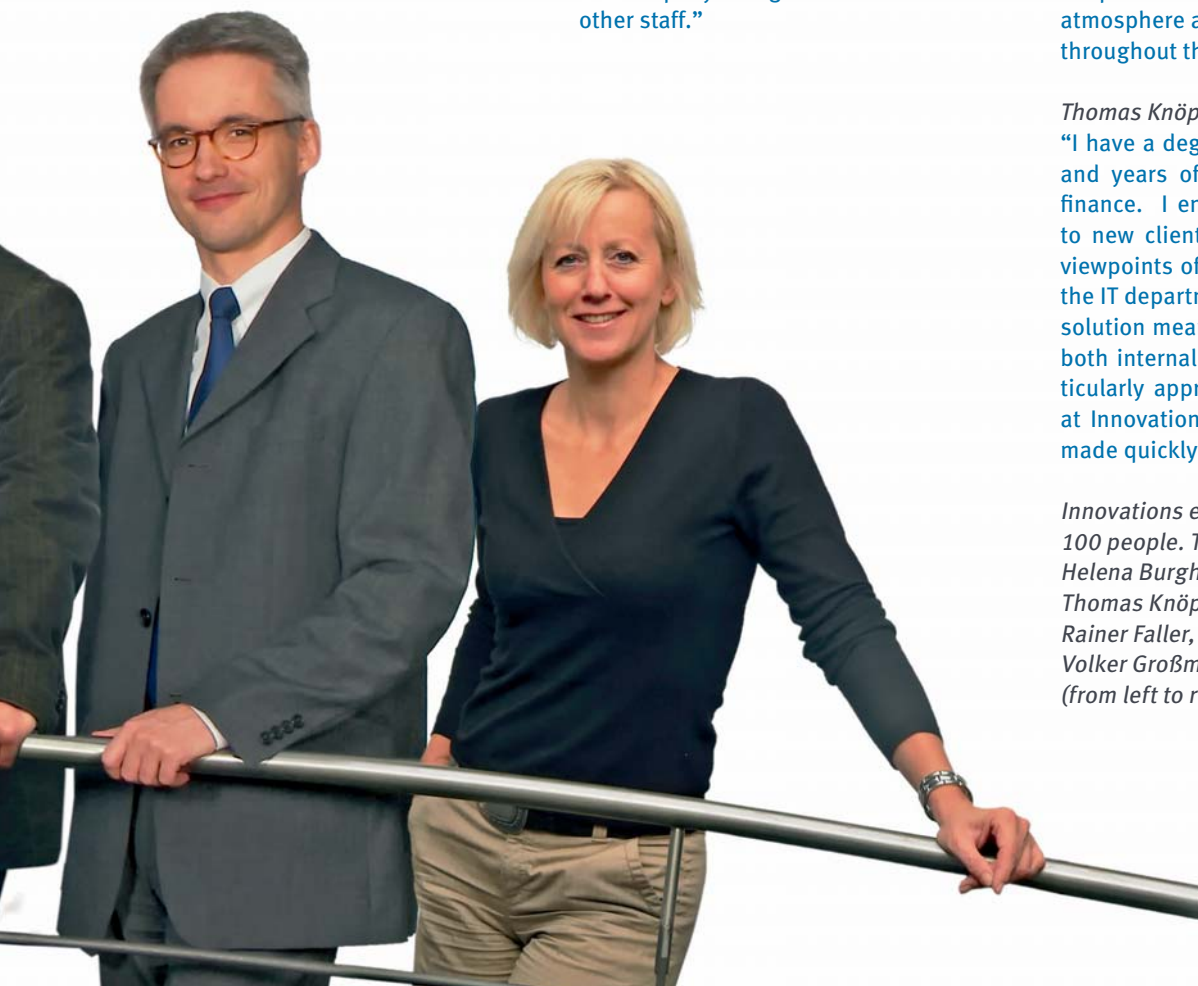
Ralf Eisele (31), Projects

“I was already focused on programming with Java while I was still in college. At Innovations I have been able to apply and deepen that knowledge. I like the collegial atmosphere and openness in our team and throughout the whole company really.”

Thomas Knöpfler (32), Sales

“I have a degree in business management and years of experience in banking and finance. I enjoy presenting our solutions to new clients and bringing together the viewpoints of both the business units and the IT departments. Searching for the best solution means I get to work together with both internal and external partners. I particularly appreciate the great atmosphere at Innovations and the way decisions are made quickly and transparently.”

Innovations employs more than 100 people. Talking about their work are Helena Burghardt, Ralf Eisele, Thomas Knöpfler, Melanie Maier, Rainer Faller, Sebastian Fandrich, Volker Großmann, Monika Nickel (from left to right).





Located on Lake Constance in Immenstaad, Germany and in Chicago, USA, Innovations Software Technology provides products and services related to all aspects of business rules management. The company offers solutions for banks and financial services providers in particular for client management, compliance, and risk management.

Innovations is a service provider for international companies such as Banca del Gottardo, Bank Vontobel, Cortal Consors, HypoVereinsbank (UniCredit), LGT Bank in Liechtenstein, Nomura Bank (Switzerland), Raiffeisen Switzerland, Rand Merchant Bank (South Africa), Schweizerische Post - Post Finance (Switzerland), Swiss Life, Volkswagen Bank, Zürcher Kantonalbank.

Coming up in the next issue

Detecting Insider Trading

Managing Potential Conflicts of Interest and Undesirable Trading Practices

Corporate Governance

Prof. Dr. Monika Roth: Responsibility Starts at the Top

The Innovations Compliance Suite

The Latest on MLDS and Its Siblings

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