Every Angle
Business Analytics made easy for SAP

Operational
Business Analytics
(OBA)

The Next Step in the Evolution of BI & Analytics

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# Operational Business Analytics

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In March 2014, during a presentation on BI in London, Gartner's Kurt Schlegel referred to data dump into Excel/Access as "The Dark Side" of self-service BI. Yet, this dark side is alive and well for the business users within a number of enterprise organizations. Why is this? In today's enterprise support systems for making decisions, there is still tremendous focus placed on account-ability and control, which revolve around "actual versus budget" types of analyses. For this purpose, classical BI implementa-tions are utilized which are based on histo-rical data. However, on an operational level, business users need access to actionable process intelligence and, often times, create self-made BI by dumping data into spread-sheets which they manipulate to make their own analytics. Yet, in today's world of ever-changing data, where the speed of transac-tions has drastically increased, enterprise organizations realize that this dark side actually represents a gap in their IT land-scape. Businesses need to quickly respond to situational changes. Therefore a need exists to take (near) real time data, turn it into business information and use it to support the decision making process on both management and operational levels. This new type of technology, which goes far beyond pure data discovery, is called Operational Business Analytics or OBA. OBA provides flexible access to insights based on the lowest granular level of de-tail in real time and fills the gap in the IT landscape.

"There are two major enterprise le-vels where decisions have to be made immediately: the manage-ment level and the operational le-vel. Classic management decision support systems, so called business in-telligence systems, focus on the aggre-gation of historical data. These systems are no longer adequate in the digital world. Today, businesses need to know what is happening now. On the opera-tional level, employees need ongoing support, also in real time, and not just based on historic reasons. On this level, as well as on the managerial level, you can't make forward looking decisions by looking backwards."
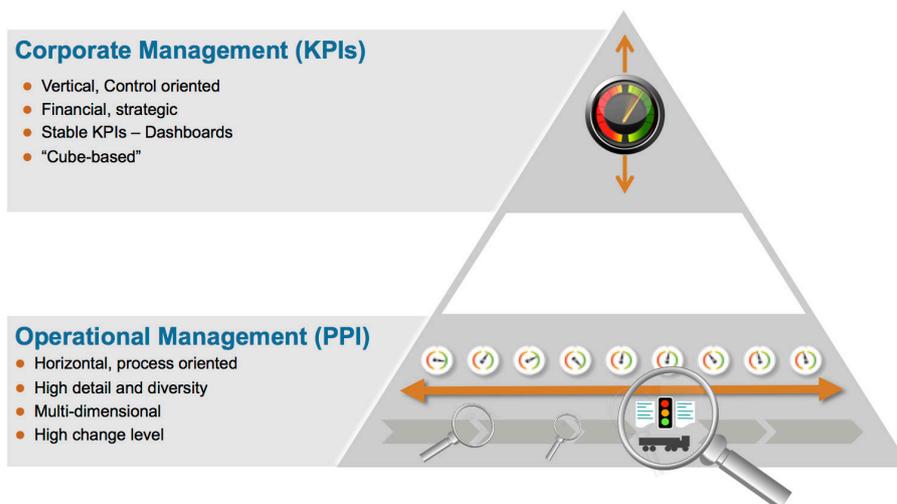
Karl Heinz Streibich
CEO Software AG*
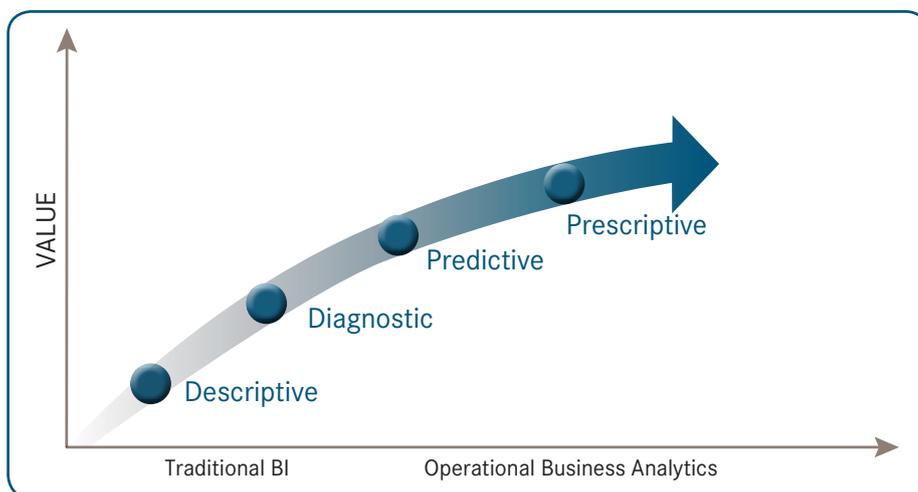
Evolution of BI & Analytics:
BI and Analytics are evolving from a set of tools and technologies that told us where we have been (descriptive), to providing insights as to why we did not perform as planned in certain areas (diagnostic). Both are historically focused. The evolution to OBA moves us to a near-future focused approach where we can anticipate future errors (predictive) and in the best case scenario define a set of discrete actions to avoid problems (prescriptive).

Corporate Management (KPIs)
- Vertical, Control oriented
- Financial, strategic
- Stable KPIs – Dashboards
- "Cube-based"

Operational Management (PPI)
- Horizontal, process oriented
- High detail and diversity
- Multi-dimensional
- High change level

Operational Business Analytics: Discover and Predict

Historical data allows a person to look into the rear view mirror of an organization in motion. Near real time data allows people to both examine the past and to make ad-hoc, forward-focused and proactive decisions. On the operational level, business users don't need just top-down analyses, but also capabilities to analyze processes horizontally across the supply chain. However, even these decisions alone are not sufficient. The only way to realize the full potential of data is to place it in context of Operational Business Analytics which can predict the near future. This enables businesses to reduce expenses, while increasing the top line through, for example, enhanced customer service levels.

Causation Is Needed, Correlation Is Not Enough

Causation is required because correlation, in itself, is not enough. Millions of things can correlate with one another depending upon how the data is structured and what is being compared. In fact, an event may even become predictable using correlation, however, discovering the root cause of the event and impact throughout the entire value chain is only possible if the discrete events in the business process can be broken down and analyzed in order to discover the exact cause of a particular event (causation). Indeed, causation also includes a temporal aspect and, more importantly, a physical link of the objects in the analytical data model. These causation links enable organiza-

tions to trace their supply chain horizontally. It calls for master, as well as transactional, data to be used on the lowest granular level in order to model the corresponding dependency of hundreds of parameters (hidden in the customizing) to provide ongoing support to the business user.

Empower The User

In order to empower the user, it is necessary to hide the complexity of the database. This calls for a simplified data model combined with pre-calculated fields, an enticing user interface and fast response times. In our modern, digital world where volume and speed are constantly increasing, the end users have to react quickly. Each end user has a varying role which generates a diverse array of information needs as well. Today's knowledge workers expect the same "consumer-like ease of use" when engaging IT at their workplace, which means:

- easy access to data using business language
- pre-defined translation of data into meaningful insights
- high degree of flexibility analyzing causations
- getting results at their fingertips.

This "consumerization" of IT has a specific impact when it comes to expectations for information and analytics in organizations that run SAP. Business users expect quick answers to "what if" questions and facilities for self-service. The data necessary to generate the answers, however, are often hidden deep in the SAP system and

need IT know-how to transform data into meaningful information. Thus complex ERP data models need to be simplified into easy understandable models. In addition, pre-defined content is needed to ensure that the user can move fast from his business question to an answer.

The Devil Is In The Details

In operations, information needs to vary quite a bit in nature and reason. Apart from this inherent variety, information needs differ by user (and there are many of them) and also in time (due to the dynamics of every day), resulting in a continuous need for ad-hoc reports. As soon as an issue arises, the root-cause needs to be identified. Instead of analyzing what just happened, you can use your real time data to look ahead and predict the impact on the supply chain in order to have sufficient time to react. This requires a lot of so-called "nitty-gritty" detailed information, because within the processes themselves, the devil is often in the details. Since the focus is on improving the process performance of your key processes such as; Order to Cash, Procure to Pay, Make to Order, Finance to Report and more, the operational level often requires highly complex reports. These reports involve flow-oriented analytics which often run across multiple departmental steps in the workflow by enabling end-to-end process analytics. In order to manage this complexity, combined with the huge data volume to capture all details, it is inevitable to keep data in memory.

There Is A Gap
In Today's IT Landscapes

How To Get There: Filling The GAP in the IT-landscape of SAP run organizations

The majority of a company's relevant data is stored in the ERP system in a structured format optimized for transaction processing. It follows logically, that this data should be accessible for analytical processing. However, neither the SAP ERP system nor the enterprise data warehouse can cater to those analytical needs, because the complex data structure that results from the flexibility and configurability of a transaction system actually prevents the system from providing operational business analytics within the system itself. An analytical view over the data is simply much different than the transactional processing view of the data.

On the other hand, BI solutions which extract and transform data from multiple systems are very powerful at reporting on past information and to derive KPIs. Thus, they are very suitatble for corporate business intelligence. Yet since they are also bound to the dimensions and values that have been selected and designed into the "BI cubes", they are lacking flexibility and are missing the needed level of granularity.

Every Angle Smoothly Complements Your SAP Landscape With OBA Capabilities

On top of your SAP ERP as leading transaction system, your BI solution caters to corporate business intelligence which aims for accountability and, of course, is needed for external reporting. Thus, the definitions must be formalized and highly standardized. Every Angle is the missing link in the IT architecture to cope with self-service operational reporting which goes far beyond pure data discovery.

Business Requirement		ERP	BI	OBA
User Interaction	Expose information to end users in "business" language to enable a real business user self service	Pre-defined transactions	Pre-defined Dashboards	Real business user self service due to translating the complex SAP data structure into 60 business objects. Result: Users do not need to understand complex table names and relationships or programming constructs like SQL, ABAP, macros, scripts, or coding languages.
	Provide a high level of flexibility for users to create and change their analyses on the fly	Since ERP is a transactional system there is very limited flexibility for analyses	Limited slice and dice capability in pre-defined cubes only	Full flexibility by connecting the business objects to enable horizontal analyses
Content	Process flow oriented analyses based on most recent data	Static ABAP reports	Built for vertical analyses based on historic data	Fully process flow oriented based on most recent data
	High level of granular transparency	All details available	Aggregated in accordance with predefined KPIs	All details available

Every Angle: Four Unique Capabilities Enable a Low TCO

1. **Plug and play installation based on Every Angle's built-in intelligence of SAP data structure, SAP dictionary, SAP customization and interaction between the three.**

Every Angle is unique because of its built-in intelligence of the SAP data structure, SAP dictionary and SAP customizing. Every Angle reads these three, out-of-the-box, and is able to immediately understand the different functional behavior of the software within each business process as a result. This allows Every Angle to be plug and play on any SAP database without the need for SAP consultants to define which data should be taken from where. Every Angle extracts and interprets the data automatically and makes the resulting intelligence available to users instantly. Out-of-the-box content with hundreds of analytical fields to provide instant access to commonly used KPIs. Ready-to-use Angles/templates for all the major processes.

2. **In-Memory "Business" Object Model to translate the complex SAP data structure into objects that business users can easily work with to support business user self-service.**

Every Angle transforms the thousands of database tables into about 60 "business objects". In essence, it transforms the transaction processing view of the data to an analytical view of the data and then enables end users to formulate their questions to the system in the terms that they recognize, such as: PO, item, supplier, customer, etc. In fact, for each major business process, such as O2C, P2P, HCM, Every Angle has developed a simplified view of the data.

3. **Out-of-the-box content with hundreds of analytical fields to provide instant access to commonly used KPIs (DSO, OTIF, etc).**

In addition to a simplified view of data, Every Angle makes a lot of calculations which are available to business users, as soon as the Every Angle solution is installed. Whether for reporting or analytics, more than 500 of these calculated fields are available. They are all based on data in SAP but not available in SAP or difficult to derive. Some of these are summations, such as the demand in the last week/month/quarter or excess stock value. Others show a status/type, such as execution status (open/closed) for each order. Some calculate Process Performance Indicators such as service level or delivery reliability. There are even more calculated fields which are the result of complex chain calculations, such as the % allocated by dependent orders.

4. **Ready-to-use Angles/templates for major processes.**

In Every Angle, an "Angle" is a view of the data. It can be a simple report, a complex analysis or both. Angles can evaluate the near past (goods receipt in the past 24 hours, still in quality block), trigger action (overdue open delivery orders) or focus on the near future (critical purchase orders requiring immediate action) as well as delivery insight into many more business areas. Every Angle plans to enrich its solution with many pre-defined Angles (called templates in the 2014-version), which enable business users to be even faster in getting crucial business insights.

1. Plug and play installation

2. Object Model in Business User Terminology
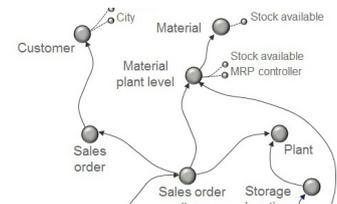
3. > 500 ready to use analytical fields

4. Pre-defined Angles/ Templates

Every Angle Smoothly Complements Your SAP Landscape

The Every Angle Architecture

Every Angle has two main components, the extractor and the Every Angle server.
1. The Every Angle extractor connects to the SAP Business Suite database and extracts the data. Every Angle extracts, out-of-the-box, a large number of standard data which can be enhanced by customer specific modules (to include i.e. Z-tables). The extractor can perform a full or a delta extraction.
2. The Every Angle server receives the data from the extractor and builds (currently once a day, in the 2014 release near real-time) an in-memory model that is ready to serve the user requests. In building this model, more than 500 analytical fields are derived from raw SAP data. These fields are critical to empower business users. So, in addition, Every Angle has an automation client to push data automatically to external databases or send emails/sms messages. Finally, Every Angle has ODBC and JDBC drivers that support external applications to pull data.

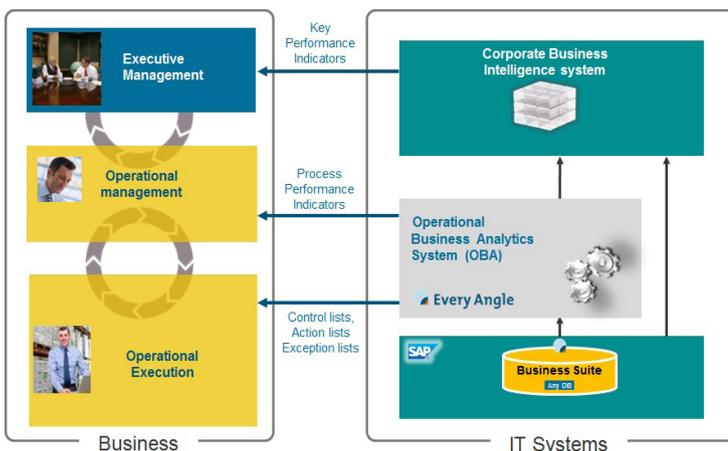## Still Just One Version of The Truth

Every Angle is not another proprietary database but a temporary data store which can be accessed through ODBC/JDBC. Every Angle is not meant to keep the transactional data history. When values that are not associated to a discrete transaction in SAP (for example inventory levels) are needed for trending and period-over-period reporting, Every Angle can be used as a conduit of daily information by using the automation client to move data to a data warehouse or even back into the Every Angle data model. Using this technique, the SAP ERP system remains the system of record and avoids the situation where user figures conflict with corporate KPI figures. The in-memory data store is designed for "superfast find & read" and is automatically fed by SAP data. Data are fully refreshed at each download and thus neither a database backup nor a recovery mechanism is needed. Data is stored on secured servers that can only be accessed by the Every Angle server application.

Near Real Time versus Real Time

Enabling business user self-service requires pre-calculation and pre-aggregation of analytical fields. This processing is essentially done during model loading. i.e. end-to-end supply chain analysis such as demand supply matching has to be performed on a snap-shot of actual data which is hardly possible on a real time changing data set. This predicates that OBA systems are just near real time with a certain latency that is needed to logically link objects occurrences and dependencies, calculate intelligent fields and prepare an easy to understand model for end user analysis. Thus your need to create a "frozen snapshot" is for consistent analytics that the business user can base decisions on. This snapshot will be periodically refreshed so that with the upcoming release you will have a maximum latency of a few hours.

Flexible Options To Consume Operational Business Analytics

More than 20% of the SAP ERP users require operational analytics. Since these are in various roles, there needs to be multiple options to consume operational analysis. Currently Every Angle offers its own (Every Angle) client, which will be replaced by an HTML5 client with the next release. There are further options such as a custom SAP transaction (ZEA03) or the automation client which enables users to publish analysis on a portal, in Sharepoint, etc. Mobile access is currently supported via iPad only but will be extended to any tablet with the next release. In addition to further options to use Every Angle, the new Every Angle client version will also support higher quality graphics, dashboarding as well as enhanced slicing & dicing techniques, and so on.

Every Angle Has a Focus on SAP

To create a simplified object model that every business user can easily understand and work with, we require a deep understanding of the complex data model of the source system. Thus Every Angle focused first hand on SAP providing a high degree of automization. Not only master and transactional data are taken into account but the key is that Every Angle can do an interpretation of the respective SAP customizing tables that are key to providing a plug and play capability. Moreover, the Every Angle data model is automatically updated to include any change in your customizing with each extract.

Prepared the Every Angle Roadmap for your Requirements

Development Area	Current architecture	2014 New architecture	2015/2016 New architecture
Technology	• Corrections • Multi core optimization • Other performance improvers	• 24/7 Near real time • Thin client: browser and tablet • Runs on HANA and/or native Every Angle database • Multiple SAP and/or HANA systems	• Multiple sourcing • HANA extensions • Performance improvements • Cloud enabling
Support & application management		• Users from active directory and SAP • One, web based Central System Management Console	• Single sign on • Extend the IT Management Console
Content (SAP scope + Every Angle logic)	• JIT schedules • Price conditions • SoPo intercompany	• New Business process IT: user logs from SAP and Every Angle • Continuous enhancements based on customer requests	• Continuous enhancements on all functional areas
Usability & deployment	• JDBC and ODBC improvements	• Fully renewed look and usage • Strong improvement in Angle creation, searching, management and validation. • Easy implementation: Templates & movies • Easy dashboarding • Auto history build up and trending	• User calculated fields • Multi source Angles • Integrate with Sharepoint etc

Every Angle Supports Your Entire SAP Lifecycle

Every Angle: Efficient and Effective SAP Projects

SAP projects can prove challenging for a company, whether it be a roll-out, an upgrade, or a merger and acquisition project. The challenge starts with ensuring data quality in case you need to transfer external data into your system. It continues with conducting a smooth go live, considering that testing is never 100% complete and users are often not completely familiar with the new system. Unpredictable events cause a need for ad-hoc insights and transparency. Every Angle minimizes the risks associated with the data migration and considerably increases the effectiveness and efficiency of the SAP project. Every Angle makes it possible to access data in the SAP system with great flexibility and speed and to gain

transparency in the data quality and process quality, before you release data for production purposes. An additional advantage is that Every Angle extracts the data automatically from the SAP system, therefore making the use of an additional ETL tool irrelevant.

TOMMY HILFIGER

"Without Every Angle, our SAP project would have been considerably more complex and more drawn-out. Every Angle supported us with:
• master data checks before the go live
• ad-hoc process analyses during the go live, and
• the early recognition of issues and disruptions after the go live.
With Every Angle, we were able to respond to and deal with the issues that came up, we overcame problems before they escalated and identified problems before they arose."
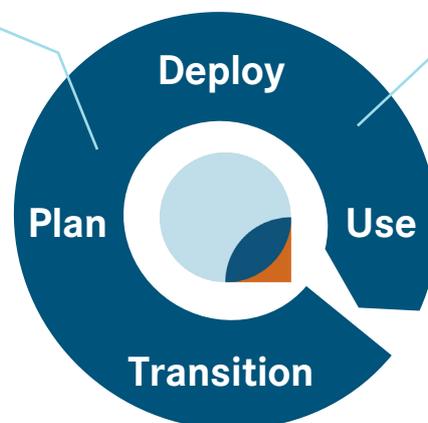
Rudy Boogaard
VP Central Operations Europe
Tommy Hilfiger

Efficient and Effective SAP Projects

- Data Migration
- Master Data Checks
- Go live Monitoring / Process Analysis
- Prototype Reports
- Ad-hoc Analysis
- Analysis & Statistics of SAP Usage

Deploy

Plan

Use

Transition

Operational Business Analytics

- Business Process optimization based on SAP data
- Bottleneck and root cause analysis including impact prediction
- action lists for proper execution
- KPIs to track progress
- Data cleansing & data governance

> "We firmly believe Every Angle 'opens up the black box of SAP' and provides business critical data that can be executed by the business users."
>
> *Graeme Clelland*
> *Business Intelligence Analyst (EMEA)*
> *Cargill*

Cargill has grown to become one of the world's largest, privately-owned businesses, providing food, agricultural, risk management, financial and industrial products and services around the globe. It has an ambitious SAP ERP roll out program with over 50 countries to be implemented within 24 months. Every Angle is seen as a key success factor to overcome the usual hurdles (quality of the migrated data, reduction of user errors, the need for many ad-hoc analyses and transparency of complex processes). Due to Every Angle the roll out program went seamlessly.

Every Angle: Immediate Value in Operations

There is a tremendous amount of money trapped inside of your operational processes and thus inside of your SAP data, which cannot be unleashed with established corporate BI solutions. The challenge in operations is to release information in a way that enables people to take decisive actions that save time, money, and increase operational performance - whether in purchasing, production, warehousing or sales. Traditional BI solutions do not meet these requirements in terms of granulation, variety, flexibility and process-flow orientation. Operational Business Analytics solutions do, allowing you to obtain operational transparency even horizontally across the entire supply chain at the most granular level of detail.

What if you could offer the business a true self-service solution, so that users could easily:
- detect bottlenecks in your operations, before they occur
- quickly analyze their root causes and
- predict the impact horizontally across your value chain?

Every Angle: Understanding Your Individual Value Chain

For all major processes (OTC, P2P, M2O and more) Every Angle transforms your transactions into analytical views that are based on plain business language. Even your business users can easily formulate their questions using meaningful terms. Every Angle does not only evaluate the near past (goods receipt in the past 24 hours, still in quality block) or trigger actions (overdue open deliveries) but most importantly it does analyze business issues for the near future. For example, for many companies it is critical to maintain a certain customer service level. So preventing back orders is crucial. The challenge is to quickly identify those sales order lines that cannot be delivered (and the reason), out of potentially millions of open sales order lines. Every Angle analyzes demand and supply horizontally across your supply chain, considering all of the pertinent documents in your SAP system. Within seconds the few that need your immediate attention are highlighted along with supporting data indicating the root causes (i.e. delay supplier, planning shortages) of the delay. In addition, with just a few clicks, the users can see all of the related documents, then take decisive corrective actions.

Your Benefits using Every Angle

- Enable Operational Business Analytics
- It is the next step in the evolution of BI & Analytics
- Increase effectiveness and efficiency of SAP roll out projects
- Reduce IT cost for special queries and custom-made reports

- Leverage existing investments in SAP
- Increase the service level to the business
- and position IT as enabler to
  - harmonize business processes
  - ensure clean master data
  - optimize data reliability.

Consumer-Like Ease of Use

Designed to support business user intuition, Every Angle delivers true self-service business analytics. A user can create any analysis in three minutes by using the hundreds of built-in business calculations, such as; demand in the last week/month/quarter or the stock excess value. Users also gain insights in Process Performance Indicators such as; service-level or delivery-reliability or in the capacity to conduct complex supply chain calculations, such as the % allocated by dependent orders.

"Many IT projects claim to be plug and play, but Every Angle actually did deliver plug and play within 3 days which is absolutely perfect."

Peter Scherpenisse
Group project manager
Kverneland Group

Kverneland Group is a leading international company developing, producing and distributing agricultural machinery and services. Strong focus on innovation allows Kverneland Group to provide a unique and broad product range with high quality. Kverneland Group offers an extensive package aimed at the professional farming community, covering the areas of seeding equipment, forage and bale equipment, spreading, spraying and electronic solutions for agricultural tractors and machinery. The Group was founded in 1879. Kverneland Group's factories are located in Norway, Denmark, Germany, France, The Netherlands, Italy, Russia and China. The Group has own sales companies in 19 countries and exports to another 60 countries.

Every Angle the Netherlands (HQ)
Kampenringweg 45C
2803 PE Gouda, the Netherlands
Tel: +31 182 577 744
Fax: +31 182 577 740
info@everyangle.com
www.everyangle.com

**Every Angle office at
SAP Netherlands**
Partnerpoort 26
Amerikastraat 10
5232 BE 's-Hertogenbosch
the Netherlands

Every Angle Deutschland GmbH
Science Park 2
66123 Saarbrücken, Germany
Tel: +49 681 3096 4135
info.de@everyangle.com
www.everyangle.de

Every Angle USA
1727-8A Sardis Road
Suite 251
Charlotte NC 28270, USA
Tel: +1 704 905-0536
m.knowles@everyangle.com
www.everyangle.com

www.everyangle.com