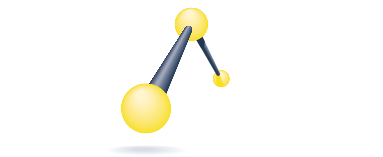
Adexa / *Collaborative Demand Planning for e-Business:*
Leveraging the Internet for Faster, More Accurate Forecasts



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Can Today's Demand Planning Tools Deliver for e-Business?

Most executives recognize that accurate and timely demand planning is a make-or-break proposition. The need for accurate, just-in-time forecasting is especially critical in demand-volatile industries such as high tech. But the explosion in online business-to-business trade has also complicated what many consider an inexact science. In the era of e-business, mistakes in under-estimating or over-estimating demand can cost companies dearly. If companies produce too much, they can be stuck with excess inventory they can't sell. Likewise, if they produce too little, they risk upsetting customers as well as losing profits and market share.

But if traditional demand planning practices are losing their effectiveness, and if today's e-economy penalizes firms more severely than ever for wrong forecasts, what choices do companies have? Forecasting systems can help, but they are only as good as the data they work with. To ensure that demand projections are accurate, businesses need collaborative tools that will bring key knowledge experts, decision makers and influencers fully into the loop. Only by casting a wider net can firms improve the breadth and precision of data they need to make informed predictions.

Accuracy Through Collaboration

Most demand planning solutions force businesses to estimate demand in a vacuum, based on a "black box" approach that relies on the activities of a dedicated power user operating with an obscure application that no one else can access or understand. Other stakeholders—principally executives, financial planners, sales managers, field sales reps, product managers, and constituents beyond the enterprise, such as customers, suppliers and channel partners—are not well tuned into the process. These parties have historically been marginalized from demand and supply planning activities, yet their collaboration is vitally needed to drive informed decisions. To empower them to do their jobs well, they also need real-time feedback regarding final forecast information as well as live visibility into the latest supply chain data.

The Need for Speed

Accuracy is clearly vital, but so is speed. How quickly companies grasp, model and act on market opportunities can spell the difference between success and failure. Unfortunately, with current demand planning tools, converging to accurate, consensus-driven forecasts still takes weeks—even months. In the world of e-business, companies can no longer afford to wait that long before making sourcing, allocation and procurement decisions. Within a matter of days, even hours, they need to know which products they should be producing, which channels to sell them through, and how precisely to drive their manufacturing and procurement operations to meet business objectives.

Leading companies are seeking solutions that can accelerate the convergence to accurate consensus forecasts by streamlining the demand planning process and using the Internet to widen the circle of stakeholders who can contribute—and use—demand information.

Raising the Bar: Adexa's Collaborative Demand Planner

Imagine the benefits if sales, marketing, distribution, manufacturing, suppliers, and even customers were all running from the same forecasts and could interactively influence them in real time within a common collaborative environment. Imagine, further, if these different stakeholders could view and then "slice and dice" demand data that is most meaningful to them through a friendly Web browser interface.

Adexa's Collaborative Demand Planner (CDP) was developed with this vision in mind. A 100 percent Internet application, CDP enables multiple stakeholders—both novices and power users alike, both within the enterprise and beyond—to collaborate on data in real time within a common planning environment and to converge quickly to a consensus-driven forecast. In so doing, CDP compresses an activity that typically takes weeks or months to a window of days or hours. At the same time, CDP continually provides users with real-time feedback and personalized access to live supply chain data to help them make more informed business decisions.

With faster and more accurate forecasting through the Internet, companies can reap huge benefits, including:

- **Greater market responsiveness—**through more frequent planning cycles that help balance supply with demand.
- **Increased customer service—**by manufacturing products customers want, when they want them, and at the right price and by providing value-added services such as advance notification of shortfalls and discounted items.
- **Increased profits and market share—**by ramping up production quickly for new product introductions, commanding premium prices through faster time-to-market, and preventing cost overruns through greater operational efficiency and better return-on-assets.
- **Reduced excess and obsolete inventory—**by making only what customers are buying.
- **Greater collaboration—**by enabling multiple stakeholders to work through the Internet to quickly reach a consensus on forecasts.

Why **Collaborative** *Demand Planning?*
Firms typically estimate short- and long-term future demand based on historical demand patterns, causal factors, sales pipelines, marketing plans (including promotions, new product introductions, and price changes) and other intra- and extra-enterprise knowledge. Unfortunately, traditional demand planning is too often conducted in isolation using static or incomplete data, and without sufficient input from key stakeholders. To strengthen the accuracy of forecasting, collaborative demand planning emphasizes multiple organizations working together in a live online environment to anticipate and share all aspects of market demand with a view toward increasing customer service, revenues, and market share capture.

Empowering Stakeholders

Adexa's Collaborative Demand Planner also provides powerful functionality that enables employees, customers and supply chain partners to make more informed business decisions using real-time supply chain information. CDP delivers greater synergy between stakeholders—both within organizations and across the extended supply chain.

- **Sales** can establish greater intimacy with customers through timelier and more accurate order promising and fulfillment. And by knowing what can be realistically made, the sales force can create more accurate forecasts that meet targeted revenue projections.

- **Executives** can easily track business performance to ensure that objectives for revenues, customer service and expenses are met on a monthly and quarterly basis—whether by company divisions, sales regions or entire product lines.

- **Finance Managers** benefit from CDP's powerful "what-if" analysis capabilities in monitoring and adjusting budgets, pricing, and other financial performance data.

- **Suppliers** can have visibility into a company's projected demand on a need-to-know basis so that they can better prepare for future production requirements and replenish supplies more quickly.

- **Customers** can enter forecasts for future orders directly into the CDP system, then easily view and track their fulfillment status. By giving customers access to CDP, companies can also make them accountable for their forecast accuracy, rewarding or penalizing them based on their performance.

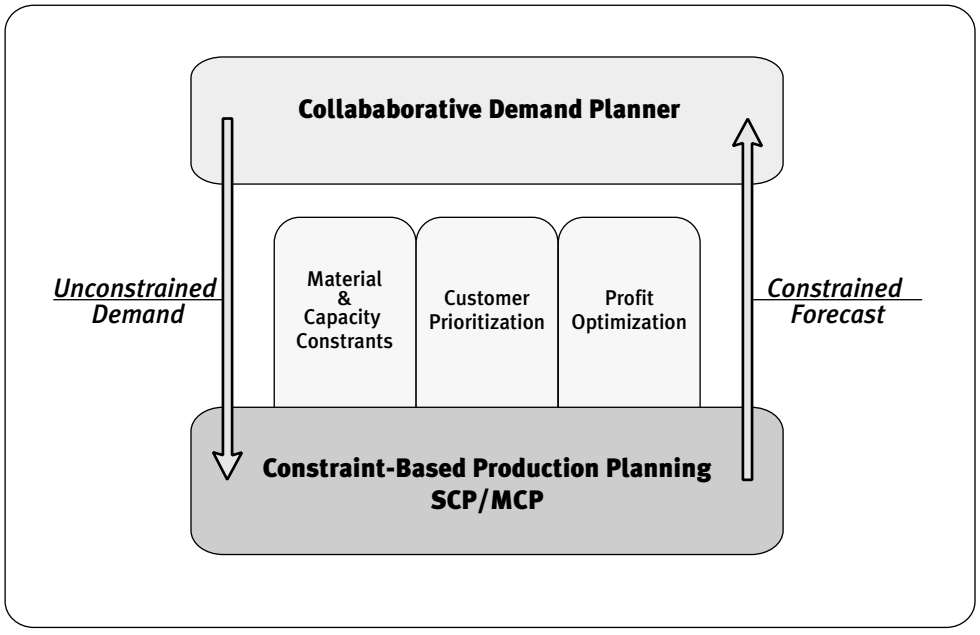
Closing the Loop Between Demand and Supply Planning

With detailed input from multiple stakeholders—each offering unique value-added business intelligence—the accuracy of the forecast improves dramatically. And because demand projections can be viewed, changed, and negotiated instantly by all parties through the Web, consensus can be reached more quickly than with traditional tools. By shrinking information lead times and reducing planning iterations, CDP helps enterprises "get it right the first time."

To ensure instant visibility into supply and demand for all stakeholders, CDP is seamlessly integrated with iCollaboration's Supply Chain Planner (SCP) and Material and Capacity Planner (MCP) solver engines through a single shared data model. The payoff for everyone involved in the collaborative process is that they can view and compare both unconstrained and constrained forecasts simultaneously.

Throughout the iCollaboration suite, dynamic communication occurs incrementally and on an exception basis between the demand and supply planning modules. CDP passes the unconstrained forecast to SCP and MCP as a way of saying, "This is what I want." After the constraint-based solve is run within SCP and MCP, they respond with the constrained forecast—saying, in effect, "This is what you can have."

Visibility into Constrained Forecast



Adexa's Collaborative Demand Planner is the only solution that closes the loop between supply and demand planning. By providing key stakeholders with real-time access to the constrained forecast, companies are able to improve their customer service levels and more quickly reach a consensus forecast.

CDP provides Internet visibility for all stakeholders into the constrained forecast, identifying the amount of demand that can be satisfied based on limited material and machine resources. The analytical engine in CDP continually compares the unconstrained and constrained forecast so that stakeholders can be immediately alerted to discrepancies between supply and demand.

Built for the Internet

In both design and execution, CDP harnesses the Internet to ensure "anytime, anywhere" access, ease of use, and simplicity of administration.

The thin-client architecture of CDP enables concurrent and distributed planning across diverse communities of users—both within the enterprise and beyond. Users can access CDP anytime, anywhere—whether through a home PC or through a remote-access laptop—to interactively view and influence the demand planning process.

At the same time, CDP's browser interface makes collaborative planning an easy-to-learn, intuitive experience for novice users. Since it has the look-and-feel and navigation of a standard Web browser, users can quickly become proficient with the application.

Because CDP runs on a central Web server, administration is greatly simplified. Administrators can quickly add new users to the demand planning process by simply assigning them with profiles, user names and passwords. And because CDP is a distributed application, new users could work in different departments within the same company or at different locations. Or they could be suppliers, channel partners or customers.

Configurable to Your Business

Adexa's Collaborative Demand Planner is the first demand planning system on the market that can adapt fully to any business environment, allowing demand data to be represented, visualized and tracked in an unlimited variety of ways. Other demand planning systems permit demand data to be viewed in a limited number of dimensions, typically by product or by customer. CDP, on the other hand, uses a rich yet flexible object model to enable the definition of an unlimited number of attribute dimensions, groupings and hierarchies within any dimension.

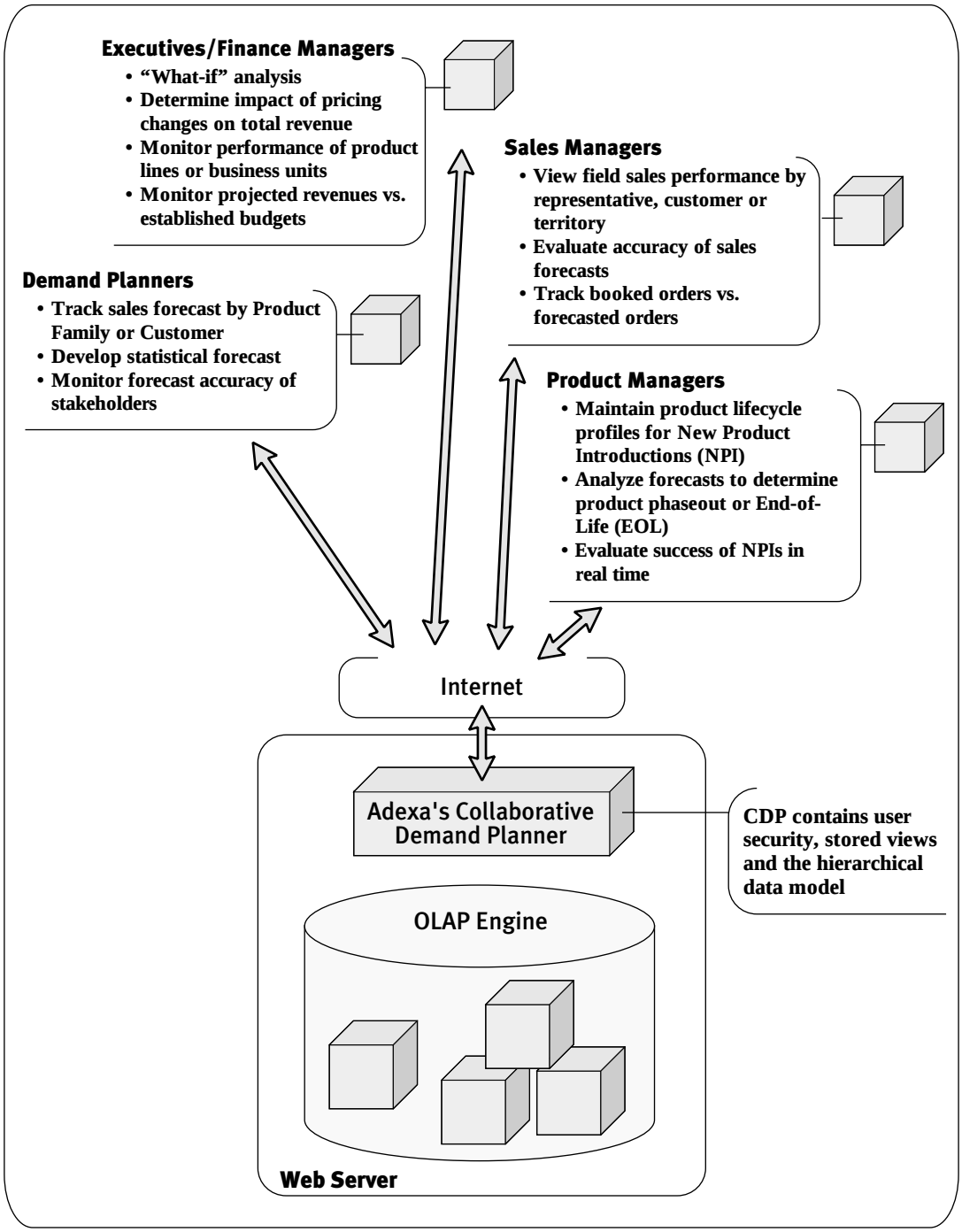
The planning hierarchy within CDP is completely definable. Therefore, users have unrestricted flexibility in organizing, aggregating, analyzing, modifying and reporting information as they see fit. For example, dimensions such as product, customer and time horizon could identify forecasts, while production could be identified by product, manufacturing site and/or time horizon. Customers and manufacturing sites could be grouped according to sales geographies and physical locations. Weekly time horizons could be grouped into months, quarters and years.

In addition, CDP automatically stores "historic measures" such as sales history, stored forecasts and forecast accuracy as well as derived measures associated with business performance. Financial managers can use CDP's powerful "what-if" analysis capabilities to modify product cost, price or margins to instantly determine the impact on company revenues.

Blending Power with Ease of Use

To keep pace with the speed of e-business, companies need a demand planning system that can be configured once to enable key stakeholders to view the latest demand data via the Internet—whenever and however they want to see it. CDP blends powerful underlying OLAP (online analytical processing) technology with intuitive visualization tools to let stakeholders flexibly view, analyze and override data at any level of the planning hierarchy. Changes to planning information made by others are automatically propagated across the demand planning community so that other stakeholders can see the impact in real time. Users can also interactively drill up and down to view data at any level of aggregation or de-aggregation. Finally, CDP's configurable interface allows users to combine different variables into one view and look at them from different angles and at different levels.

Personalized Views Improve Decision Making



Adexa's Collaborative Demand Planner provides stakeholders with personalized subsets of data to simplify analysis. Rather than being overwhelmed with large amounts of information, users can customize the information they receive as well as the format in which they view it.

When users log on to CDP's Web server, they see a list of views, which are the stored templates (pre-configured in the system but fully customizable by users) that best support their planning roles and activities. For example, a demand planner may opt to view forecast data by product, customer and location, whereas a finance manager may want to view projected revenue by location only.

CDP lets users easily see the information they are most interested in. Users can carve out personal subsets, or "data cubes," from the large planning database. Not only do they transmit efficiently over the Internet, but these smaller sections of the planning data also allow users to quickly "slice-and-dice." As a further convenience, CDP comes preconfigured with user-customizable data cube structures that can be tailored to unique business roles—such as sales managers, field reps, dedicated demand planners, product marketing managers, financial analysts, operations managers, suppliers, channel partners, even customers.

For example, a sales manager who is only responsible for selling Product Family A to Customer B in the international market can quickly define the subset of the database she wants to view by defining ranges along various data dimensions. This is only a small portion of the comprehensive database, but it dramatically improves the efficiency with which she can view, analyze and manage data at the varying levels of the planning hierarchy contained within that data cube.

Adexa's Collaborative Demand Planner contains additional features that make collaborative planning an intuitive experience for users, including:

- **Automatic drill-down capabilities**—users can double-click on a row or column header to view data at a more detailed level.
- **Exception highlighting based on user-defined conditions**—any cell that has triggered an alert is automatically highlighted.
- E**diting control based on user access rights**—depending on their business roles, users can be assigned different read/write privileges for different parts of the planning database.
- **An easy-to-use configuration tool**—users can save views under specific names and re-use them later.
- **Flexible visualization and reporting tools**—users can easily select fonts and graphical formats, including plots, bar charts, and parts.
- **Export capabilities into Excel**—users can click a button to have data automatically exported into an Excel spreadsheet for convenient offline viewing.

Powerful Security Features

Security is essential since CDP provides stakeholders all over the world with access to sensitive business information. To enforce security, administrators are able to determine function and data access privileges on a user-specific basis. For each user, administrators can associate one or more Function Roles and Data Roles.

Function Roles determine which specific CDP functionality users have permission to execute—for example, creating or modifying views, sharing views with other users, changing passwords, accessing security settings, and the like.

Data Roles regulate the specific read and write privileges that users have within the planning database. For example, if a given user is limited to viewing and modifying data only for a specific customer, other customer names would not appear as options in the database view CDP provides.

Automated Monitoring and Messaging

At the core of the CDP environment is a powerful automated monitoring and messaging network. CDP's intelligent "listener" engine continually monitors the collaborative network and sends online alerts to appropriate parties when inconsistencies, supply/demand shortfalls, or other user-defined exceptions are discovered in system data. For example, users can set a messaging trigger that is activated when the supply (constrained forecast) is substantially less than the demand.

The thresholds that, when breached, activate system messages are completely user definable and can be associated with any standard measure or derived measure. In the case of standard measures, a planner who monitors inventory levels can set a trigger to transmit an alert when the stock level for a given product drops below 500 units.

Other examples of alerts associated with standard measures might include:

- Triggering an alert when inventory falls below a company's two-week safety stock level
- Triggering an alert when a monthly sales forecast exceeds 500,000 units
- Triggering an alert when total shipments breach a million units in Japan

In the case of derived measures, CDP can be configured to monitor the percent of deviation between the unconstrained and constrained forecast, then send an alert when a predefined threshold is breached. Other examples of alerts associated with derived measures might include:

- Triggering an alert when the forecast accuracy falls below 70%
- Triggering an alert when any customer forecast is modified by more than 30%
- Triggering an alert if projected revenue for Europe exceeds $10 million.

CDP updates derived measures automatically when their source measures change. No batch or recalculation process needs to be run to ensure that derived measures reflect their real-time values. Instead, when the value is modified, all of the derived measures that depend upon that value are automatically triggered to recalculate. The benefit is that triggers based on a derived measure are always evaluating a real-time comparison—there is no delay before derived measures reflect the active data.

Seamless Integration with External Systems

The open, single data model architecture of Adexa's Collaborative Demand Planner enables companies to quickly maximize their existing technology investments. CDP has standard interfaces with enterprise applications such as ERP, CRM, MRP, Order Entry, Accounting, Distribution and other systems to simplify integration.

While CDP is already integrated with Adexa's own powerful forecasting engine, it can also easily pull data from other forecasting tools, including homegrown systems that may contain customized or proprietary statistical algorithms. CDP's open and flexible data hierarchy can precisely replicate the relational data structures of other forecasting systems.

Benefiting from Collaborative Demand Planning

For the first time, multiple stakeholders can use the Internet to quickly develop accurate consensus forecasts with Adexa's Collaborative Demand Planner. Additionally, CDP provides stakeholders with powerful functionality to help them make more informed business decisions.

While traditional demand planning solutions have kept stakeholders largely removed from the planning data, CDP provides each user with personalized views into the data that matters most to them. Since each user can access, analyze and act on real-time supply and demand information, CDP dramatically improves their ability to make informed business decisions.

Adexa's Collaborative Demand Planner provides unique benefits to a wide variety of end-users, including:

Demand Planners
Demand planners typically serve as power users in the demand planning process. They manage the development of the statistical forecast and publish the data to the collaborative planning environment of CDP. This statistical forecast, which can be enhanced with the application of seasonal and lifecycle profiles, frequently serves as the baseline projection or starting point for all of the collaborating parties. Using CDP's forecast accuracy engine, demand planners can monitor the forecast accuracy of every party involved in the collaborative planning process. Those parties that provide the most accurate forecasts can be rewarded with a heavier weighting in the calculation of the consensus forecast, which is the 'one number' used to drive operations.

Finance Managers
Using CDP's analytical engine, finance managers can continually monitor projected revenues against budgets established by executives. By setting a trigger, financial planners are immediately alerted when projected revenue for a given business unit falls short of corporate expectations. CDP is also an optimal environment for supporting "what-if" financial analysis. Finance managers can alter the price or cost for a product and immediately identify the impact at any level in the planning hierarchy. For example, a finance manager could override the selling price for a specific SKU and then immediately analyze the adjustment in projected revenue for the associated product family.

Senior Executives
CDP's friendly browser interface and its ability to serve up customized views of data make it a powerful tool for executives seeking to monitor company performance and hold organizations accountable. Rather than viewing operations at a detailed level, executives can view unit sales and projected revenue in quarterly time buckets for each region, for example, and compare the information to corporate goals. CDP's messaging engine automatically alerts executives regarding under-performing divisions that fail to meet budget targets. Executives can also easily drill down to lower levels of aggregations (e.g., months, weeks, countries, and cities) to track business performance at more detailed levels.

Field Sales Representatives and Channel Distributors
Wherever they are in the field, sales representatives, channel partners and resellers can enter customer forecasts, analyze sales history, retrieve open orders and orders-to-date for the current period, and then view the current amount of product allocated for delivery to their customers. Using the analytical engine to continually monitor these streams, sales representative can define customer service levels and receive automated alerts when service dips below a predefined threshold.

Sales Managers
Sales managers can view the input of field sales representatives at an aggregate level, such as a territory. From this point they can drill-down to evaluate the performance of individual sales representatives and the amount of business associated with specific customers. Using the analytical engine and financial conversions, the sales manager can evaluate the accuracy of sales forecasts, the amount of revenue brought in by each representative, and the projected revenue of sales on a region-specific and customer-specific basis.

Product Managers
Given the inside knowledge that marketing managers frequently possess, CDP provides customized mechanisms to ensure that the impact of this intelligence is reflected in the planning process. Because new products do not have sales histories upon which to base statistical forecasts, marketing managers can maintain a library of lifecycle profiles that can be used to shape the product forecasts over the comprehensive planning horizon—from pipeline fill, to ramp up, to mature sales, to phaseout.

Supply Planners
Supply planners can now be drawn earlier and more proactively into the collaborative demand planning process. Frequently supply planners are not interested in the specific customers for which demand is forecasted. Rather, they are interested in the total demand for a given product. When supply planners customize views they can choose to view total product demand on a company-wide basis, or for a given location, without the customer delineation. With continual, real-time vision into unconstrained demand forecasts, and through the use of CDP's automated messaging engine, supply planners can immediately identify whether upcoming demand requirements are aligned with supply and production plans.

A Collaborative Framework for e-Business Success

The sheer volume and velocity of today's business-to-business transactions have exposed the inaccuracy and slowness of pre-Internet and so-called "Web-enabled" demand planning technologies. Today's companies seek a proven, Internet-ready solution that can match the blistering pace of e-business—one that enables them to model and influence demand in their markets and to communicate that demand swiftly across their enterprises and beyond.

Functionally and architecturally, Adexa's Collaborative Demand Planner meets the e-business imperatives of speed and customer service. For the first time, multiple stakeholders—both players within the enterprise and supply chain partners and customers around the world—can view, share, analyze, influence and dynamically adjust for demand at Internet speed. CDP delivers the first real-time collaborative environment in which firms can synchronize the activities of finance, sales, operations, customers, resellers and partners to reach viable, consensus-driven forecasts that can be shared by all parties to drive operations. In so doing, Adexa helps companies thrive in today's e-business economy.

To test drive Adexa's Collaborative Demand Planner and other iCollaboration e-business solutions, contact us at 888-300-7692 or visit us at adexa.com.

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