

## **BUSINESS INTELLIGENCE: A GUIDE FOR MIDSIZE COMPANIES**

IMPROVING YOUR COMPANY'S EFFICIENCY  
AND EFFECTIVENESS, NO MATTER ITS SIZE



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# EXECUTIVE SUMMARY

## MAKE INFORMED DECISIONS ACROSS YOUR COMPANY

Your company's focus has been on streamlining operations, acquiring customers, increasing revenues and profitability, and outpacing the competition. And while your company has continued to improve its operating efficiencies (sometimes by quickly learning from past mistakes), you feel your company should be spending more time analyzing what's going on and predicting and planning for the future – rather than having your employees constantly running around trying to solve operational problems based on history and putting out fires.

Furthermore, you need the ability to determine where to concentrate your efforts. You can't check every detail, yet you would like to be able to monitor your operations and focus on quickly finding and resolving potential problems while identifying and leveraging new opportunities despite the current uncertainty of the world economy. You want to ensure that employee and departmental metrics are aligned with your company's strategic goals.

You realize that your company does not have the resources of a Fortune 500 enterprise, but you believe that – man for man and woman for woman – your company's employees are more passionate about their jobs and more committed to its customers. Your company may be relatively small right now, but it's on a planned growth path. You've heard the term "business intelligence" and know that large companies – and maybe even your direct competitors – are using it to obtain a competitive advantage; however, your company's primary analysis tool is a spreadsheet.

You were there when your company's first location was its founder's garage. Now that your operations have graduated from the garage to real offices, isn't it time your company's analysis capabilities graduated from spreadsheets to more powerful tools as well?

This white paper from SAP offers guidance on how to improve the efficiency and effectiveness of your company with business intelligence.

# SIGNS YOUR COMPANY NEEDS A BUSINESS INTELLIGENCE SOLUTION

## CAN YOUR COMPANY BENEFIT FROM BUSINESS INTELLIGENCE?

The following scenarios represent typical situations that indicate your company could benefit from a business intelligence (BI) solution:

- Multiple versions of the truth. Interdepartmental meetings frequently turn into shouting matches as participants argue about whose spreadsheet has the correct figures.
- Inability to perform in-depth analysis. Your company knows which of its retail outlets have the greatest sales volume, but it doesn't know which products have the highest sales by season.
- Inability to locate important information. Someone in accounting mentions that a report showing year-over-year growth for each customer has been posted to the company's intranet. However, no one can find it.
- Need for simple-to-use production-reporting technology. Your accounting department uses a word processor to generate customer invoices. Customers frequently complain about being invoiced twice for the same purchase or shipment.
- Difficult-to-use BI technology. Your company's sales manager used analysis tools at her former job that she insists be used in your company as well. Although your company has invested in several licenses, users that have tried to use these tools have given up in frustration and rely exclusively on spreadsheets instead.
- No retention policy or practice for historical values. The sales department is conducting account reviews and wishes to compare each customer's sales to date this year with its sales to date at this time last year. Sales maintains a spreadsheet for this year's results, but the person who maintained the spreadsheet last year has left the company – and no one has any idea what happened to last year's spreadsheet.
- Limited operational flexibility due to weak or nonexistent BI technology. Your company has grown to the point where its customer base has expanded to the hundreds. While it values every customer, it would like to identify the top 10 in sales volume each month and offer them extra attention and special incentives.
- Inability to differentiate and prioritize problems. While all problems need to ultimately be addressed, you should be able to identify which ones need immediate attention. Oftentimes, you can only identify projects that are behind schedule or departments that are over budget after they are deeply in trouble.
- No alignment of operations with strategic goals. Although your company has defined its strategic goals, you are not sure if they are in tune with its daily operations. Several managers have told you that while they know how to optimize the work of their own departments, they would like to better understand how their efforts support the overall goals of the organization.
- Inability to comply with government reporting requirements. While your company is still relatively young, it hopes to one day go public – or at least demonstrate compliance for any given future business scenario. In your role as IT director, you want to take steps now to provide proper audit trails and data lineage to ensure that your CEO and CFO have confidence in the accuracy of business data.

# WHAT IS BUSINESS INTELLIGENCE?

## WHY MIDSIZE ORGANIZATIONS NEED BUSINESS INTELLIGENCE

### How Business Intelligence Is Helping Midsize Organizations

Business intelligence allows organizations to better understand, analyze, and even predict what's occurring in the overall environment and in their company. BI helps your organization turn data into useful and meaningful information and then distribute this information to those who need it, when they need it, wherever they need it – so that they can make timely and better-informed decisions. It allows organizations to combine data from a wide variety of sources and see an integrated, up-to-date, 360-degree view.

This is especially important for midsize companies, which – while not having the vast resources of industry giants – are typically able to more quickly implement business decisions. BI provides a win-win solution for IT and business users by allowing the IT department to be more productive in working with its business users to service special requests – while permitting those business users to become more self-sufficient. Operations and analysis are two sides of the business, and BI allows IT to be a valued partner in both.

Business intelligence helps your organization turn data into useful and meaningful information and then distribute this information to those who need it, when they need it – so that they can make timely and better-informed decisions.

Typical uses of a BI solution for a midsize company are to:

- Determine the inventory level of a product or part
- Identify its best-selling products and see if this holds true in all of its distribution channels
- Identify customers that are cutting back on their purchases so that special inducements can be offered to retain them
- Implement dashboards and scorecards so that executives and supervisors can quickly recognize operational exceptions or key performance indicators (KPIs) that fall outside of accepted ranges
- Establish and monitor performance metrics and take corrective actions if they are in danger of not being met
- Compare departmental turnover to identify potential morale problems
- Compare year-to-date sales for this year with last year and forecast what sales are likely to be for the entire year
- Track customer orders and desired ship dates against finished-goods inventory and adjust the manufacturing production cycle and supply chain logistics to reduce inventory carrying costs
- Integrate operational, spreadsheet, and historic data for analysis purposes – while helping to stamp out “spreadsheet chaos” – to provide consistency and “a single version of the truth” for the organization
- Provide business users with the ability to perform their own ad hoc analyses without having to involve scarce IT resources
- Align daily operations with strategic objectives and quickly recognize when they are not in agreement

# BI COMPONENTS EXPLAINED

## A BROAD CHOICE OF TOOLS AND FUNCTIONALITY

### Much More Than Just a Simple Query

The BI spectrum is very broad in terms of its tools and functionality. At its core are the traditional functions of query, reporting, and analysis. This is complemented by data quality and data integration to accurately and consistently consolidate data from multiple sources. Dashboards and other visualization techniques help users quickly understand analysis results, a critical component of the BI solution spectrum.

Other tools include:

- A search function to locate information and reports
- Predictive analysis to discover hidden patterns and enable what-if analysis
- Scorecards and performance management to help monitor business metrics and KPIs, such as customer satisfaction, profitability, and sales per employee, in order to align individual and departmental metrics with the organization's strategic goals

### Reporting Across the Enterprise

A simple query might access your company's data to ask, for example, "What were total sales to customer ABC Corporation last December?" or "What's the current salary of the employee with employee number 157?" or even "How much of part 123 do we have in inventory?" Most query tools also provide simple reporting functionality and could, for example, be used to generate a report listing the accrued vacation of all employees, sorted and totaled by department.

Enterprise or production reporting typically involves high-volume, high-resolution reports that are run on a regular basis. An example might be a manager's report showing monthly sales and associated sales commissions sorted by salesperson and then by customer or inventory status by product or warehouse. The report distribution would likely be controlled so that each sales or production manager could see only the entries for his or her sales force, product, or warehouse location. It might be e-mailed or viewed through a Web browser. Enterprise reports can also be used to generate statements or invoices for customers or individualized benefit summaries for each of your employees.

### Easy-to-Use Advanced Analytics

With advanced analysis functionality, users can view data across multiple classifications or dimensions (for example, product, customer, location, time period, salesperson, and so on) and slice and dice the data to look at various combinations, such as the sales in each region for December or the products each customer purchased last year. Advanced analysis functionality also permits organizations to define hierarchies so that, for example, a user could view sales first for each region and

then could drill down to view sales in each state or country in each region. By drilling down further, the user could view the sales of each store within each state or country. It would also be possible to see the sales of each product in each store or the sales for each salesperson for each product. These advanced analysis functions make it easy to compare the results from one time period with another so that total sales of a product for this month (or some other time period) could be compared to the same month last year – while allowing the user to drill down and perform year-over-year comparisons at levels such as store, customer, or salesperson.

Other advanced analysis functions, such as filtering, can be used to include or exclude specific stores, regions, products, salespeople, or time periods in the analysis – and provide the ability to look at the top-25 or bottom-25 (or any other number) or best- or worst-performing products, stores, or salespeople. The ability to look at results across several dimensions and easily request the top or bottom performers – when combined with drill-down, slice-and-dice, and filtering functions – provides powerful but easy-to-use analytics.

Star Trac of Irvine, California, is a midsize manufacturer of quality physical-fitness equipment serving a global market. Like many rapidly growing companies, its data was spread across multiple silos – making it difficult to aggregate and reconcile data to facilitate better decision making and align key objectives and business processes. Star Trac needed a product suite that offered flexible reporting, ad hoc query and analysis,

interactive dashboards, and visual analytics. "Fast, easy business intelligence will save us time, boost productivity, and deliver the data to help us grow the business," says Jeff Kuckenbaker, senior director of information systems. "We'll use SAP BusinessObjects Edge to deliver information across the company, so everyone can better understand how to execute our strategies for growth."

Simple reports were initially designed for passive viewing, while solutions providing advanced analysis features enable interactive analysis. Many of these advanced functions were once available only in specialized online analytical processing (OLAP) products that involved the use of proprietary databases and highly skilled technical specialists. Now OLAP functionality is often incorporated into query and analysis tools, thus allowing business users to perform interactive analyses and, for example, click on a number in a report to drill down to and analyze the underlying details – ascertaining root causes in many cases.

Effective BI should be an interactive process, and query and analysis tools – with embedded OLAP functionality – permit business users to perform dynamic analyses on their data. As most IT practitioners can attest to, a user working with a static report will likely ask for additional details and modifications; query and analysis tools allow business users to formulate a high-level query and then immediately explore the underlying details on their own.

Core BI technology – like query, reporting, and interactive analysis – is used to view or analyze what is or has already occurred, while data mining and predictive analysis allow users to predict what may occur in the future – very critical in today’s uncertain economy. BI uses sophisticated statistical techniques to find relationships that are hidden or not obvious. It can be used to identify which factors closely relate to customer churn and attrition or which factors (such as a prospect’s income, education, age, or last purchase amount) were most closely related to a successful response in a marketing campaign.

#### Visualization Techniques

A picture is worth a thousand numbers, and highly graphical techniques – including dashboards – strongly complement the other members of the BI spectrum. Using graphical gauges analogous to an automobile dashboard and symbols such as traffic lights – where red represents an alert condition and yellow a warning – users can quickly identify exception conditions.

It has often been said, “If you can’t measure it, you can’t manage it.” Scorecards and other performance management tools enable you to establish business metrics, update and monitor the results, and communicate them as appropriate so that minor problems can be identified early on and corrective action taken quickly. Dashboards are used frequently to display performance metrics and can allow users to drill down from the visual image to view the underlying detail. Other visualization techniques include “slider bars,” which allow a user to perform what-if analyses and, for example, show how profit margins would increase if maintenance revenues were increased or distribution expenses reduced.

Marcus & Millichap Real Estate Investment Services Inc. specializes in investment real estate brokerage, providing real estate investment sales, financing, research, and advisory services. With SAP® BusinessObjects™ Edge software, the company can efficiently distribute current market information to its agents. According

to Marty Louie, vice president of finance at Marcus & Millichap, “The name of the game in brokerage is information – the type and quality of information that you give to your clients will help them more efficiently deploy their assets and maximize their returns. By implementing SAP BusinessObjects Edge, we can aggregate the data quickly and efficiently distribute it to all of our agents and management team.”



While many small businesses and midsize companies have relied on spreadsheets as their primary BI tool, most of them have come to realize that this is a stopgap solution and one that's apt to lead to data chaos and inconsistent analysis results.

#### Distribution and Control

Business intelligence is not just about tools and their applications; it's also concerned with distribution and control. Reports should be able to be published to the Web and delivered to a user's preferred mobile device. However, not every employee should have access to every report or analysis – and administration, monitoring, security, and control are also part of the BI environment.

The use of commercial BI products does not necessarily mean the elimination of spreadsheets; rather, BI can provide controlled linkage of spreadsheets to up-to-date data while enforcing proper distribution and control so that "spreadsheet chaos" is no longer an issue, and trying to determine whose spreadsheet is "more correct" is no longer part of every company meeting. The ability to locate and search out relevant reports is also part of the BI landscape, as a report is of little value if no one knows it exists or how to find it.

#### Using BI with Data Warehouses and Operational Systems

The use of BI, however, is not limited to data warehouse environments in which snapshots of data from multiple systems are consolidated for analysis; it can be used with operational systems as well.

When deployed with operational systems (that is, those that help run or operate the business), BI might be used to show current values – such as current inventory levels, outstanding customer balances, salaries, or student attendance. When deployed with a data warehouse, which contains data values taken at periodic points in time and frequently sourced from several operational systems through the use of data-integration and data-quality technology, it often involves comparing one period's results with another period's results. A typical use would be to compare this quarter's sales against the same quarter in each of the preceding three years. Some data integration vendors offer connectors or integration kits to facilitate access to commercial enterprise application software.

Data quality is of paramount importance in both operational systems and data warehouses. In an operational environment, no one wants to ship the wrong order to the wrong address, deliver 50 kilograms of a product when 50 pounds were ordered, provide a patient with the wrong medication, or transfer funds to the wrong bank account. In a data warehouse environment, no one wants to make decisions based on incomplete, incorrect, or inconsistent data. The deployment of data-quality tools can help ensure that this does not happen.

By using BI with both operational systems and data warehouses, a company can not only improve its daily operations but also compare current results with historic values to identify trends and head off problems before they become more serious.

# THE BENEFITS OF BI

## IMPROVE THE OVERALL EFFICIENCY AND EFFECTIVENESS OF YOUR ORGANIZATION

When selecting a business intelligence product, it's important to consider other factors in addition to specific product features – such as ease of use, ease of implementation and administration, scalability, user-interface options, and how well it integrates into your company's existing and future platform environment.

A major part of any manager's job is to make decisions. If you can improve the overall quality of your organization's decision-making processes, you can improve not only the overall effectiveness of your organization but also the overall efficiency of your business. Business intelligence can help your organization make better decisions – and help you not only **run** your business but also **manage** your business more efficiently and effectively.

BI allows business users to analyze and better understand their organization's plans and results. It provides insight into what's working correctly while identifying potential problem areas in time for corrective actions to be taken. It can be used to recognize opportunities as well as problems and

alert your organization to potential issues when exception conditions occur – such as sales dropping 20% below forecast or inventory falling below a threshold value.

Since BI product suites include a variety of functional options, organizations can pick those that are most appropriate for the task at hand and for the experience level of their individual employees – implementing functions needed immediately and introducing others when needed in the future. While in the past only technical specialists typically used BI tools, most business people can now successfully use them as well. This has served to democratize BI usage throughout organizations. The role of IT has evolved positively from maintaining user names

and passwords and updating reports to more strategic activities by applying appropriate technology to bring analytical power to business users. This has provided business users with quicker response time and the ability to drill down and perform interactive analyses while enabling IT to serve its organization more effectively and more efficiently.

While many managers and supervisors pride themselves on their intuition, BI provides tools to help verify their insights and even discover new ones. It permits business users to explore results at a high level and then drill down to analyze the underlying details. Business intelligence is one of the primary keys to effective decision making.

When selecting a business intelligence vendor, it's important to consider many factors – including experience, reputation, and stability – as well as the vendor's professional services capabilities and the quality and strength of its partnerships.

# APPROACHES TO IMPLEMENTING BI

## START SMALL BUT GET READY TO MOVE QUICKLY

Beginning a BI initiative is not necessarily expensive, especially if you choose a vendor with a suite of products that allow you to easily start with your initial BI needs and expand your BI usage, implementing the tools you need as your business continues to grow and expand.

### Make Business Users Self-Sufficient BI Consumers

As your company transitions from an undisciplined spreadsheet environment, it often makes sense to start small – perhaps deploying BI against one business application with a query and reporting tool. Your company can expand its BI deployment to additional applications and use additional functionality as the organization quickly masters the technology. One place to start is with the application that has the greatest reports backlog. While the IT department can certainly use BI tools to reduce this backlog, the ultimate goal should be to make your business users self-sufficient and less dependent on IT for their analyses.

IT can assist business users by using the “guided analysis” functions of some BI tools to create parameter-driven reports with user-selected filtering criteria that business users can use to perform their own customized analyses. As users gain experience, some of them generate their own reports and contribute to a corporate report library. It’s up to each company to determine the approach that works best for it. In general, as an organization discovers

the benefits of BI, usage is likely to spread quickly throughout the organization. Using commercial BI tools does not mean that your organization has to abandon spreadsheets. Instead, IT needs to establish procedures for proper distribution and control and acquire BI tools that can interface with them.

### Facilitate Analysis with a Data Warehouse

At any point in time there are a range of users for BI, from novice to expert. The IT department can set up and enforce policies as to who can access what reports and who can create their own reports. If your organization is using a commercial software package, popular BI tools may have been bundled with it, and your organization may already have experience using these tools.

After using BI for operational purposes, organizations likely want to use it for deeper analysis, often requiring the comparison of one period’s results against another period’s results. This is facilitated by the use of a data warehouse that contains historical data values – thus making time-period comparisons possible. A data warehouse usually contains data from many sources, and data integration software provides the enabling technology for loading the warehouse, while data-quality software helps ensure that the consolidated data is both accurate and consistent. Many organizations have attempted to build data warehouses that, for all practical purposes, were data dumps; the use of data-quality software would have prevented this. One of the oldest IT adages is “garbage in, garbage out,” and this applies to both data warehouses and operational systems.

FreshDirect, an online grocery delivery company, first used SAP® BusinessObjects™ Edge software to gain insight into customer complaints and feedback to identify key issues across their value chain, understand their trending, and evaluate how these issues affected the business. With SAP BusinessObjects Edge, the customer feedback report became a gold mine of information. Using information from the report, FreshDirect was able to dig into customer data product-by-product, recognize trends and understand

how they affected the business, and even identify the products that were either negatively affecting customer loyalty or bringing them back for more. Armed with such insights, executives were able to look at processes within the plant where they had issues – whether at the picking operation or on the assembly line – and proactively address them. As a result, FreshDirect was able to improve product and shipment quality and save significantly on discounts provided to customers to compensate for a packaging or delivery problem.

# WHAT TO LOOK FOR IN A BI PRODUCT

## GO BEYOND PRODUCT FUNCTIONS AND CONSIDER YOUR USERS

When selecting a business intelligence product, it's important to consider other factors in addition to specific product features – such as ease of use, ease of implementation and administration, scalability, user-interface options, and how well it integrates into your company's existing and future platform environment.

Among the most important of these considerations are:

- An integrated product suite with a range of functions that your company can deploy as needed. As your company grows, it should not outgrow the software of its BI vendor. In addition, individual users may require different functions, and an integrated product suite provides the greatest deployment flexibility.
- The scalability to handle an expanding user base as your organization grows and usage increases. As your organization gains experience with BI and its usefulness becomes evident, it's quite likely that its usage will spread quickly.
- Data-quality functionality to ensure a trustworthy data foundation so that your company is analyzing accurate, consistent, and complete data. High-quality data is a requirement for high-quality decisions, helping you avoid the problems associated with having "multiple versions of the truth."
- The ability to access and integrate a wide variety of disparate data sources. Although many companies initially run their analyses against individual systems, the time will come when data from several sources is needed to show the total picture. A product suite that includes data integration technology and the ability to have the data appear as if it were located in a single source allows you to accomplish this easily.
- Integration with your desktop software, in particular Microsoft Office. This allows users to complement BI with their familiar desktop tools, which can reduce your organization's training requirements.
- Support for multiple operating systems. You can keep your future options open and not constrain your organization to a single operating system. Linux is growing rapidly in importance, and your BI solution should support it.
- Ease of initial installation and deployment, as well as ease of adding more users. This not only makes it easy to add new users quickly but can increase the productivity of your IT department.
- Powerful but easy-to-use administration tools. Your IT department needs to control "who can access what" and provide a level of security and privacy that's simply not possible in a spreadsheet-only environment. Your data is an organizational asset that your BI products should help you protect, while allowing those who need to analyze it to do so efficiently.
- Robust report cataloging and distribution functions that allow authorized business users to receive their analyses on both a periodic-subscription and an on-request basis. A function to alert users when certain events or value thresholds occur is also important.
- The ability to deliver reports to a wide variety of desktop and mobile devices, with content formatted to match the functionality of these devices
- Strong search functionality that facilitates finding needed information and locating relevant analyses and reports
- Support for business users who want to "speak" in business terms. A product suite with a semantic layer transparently isolates users from underlying technical complexities and allows them to focus on their business issues, not technical software details. For users that need to know where data was sourced from and the underlying formulas (for example, how gross profit and net profit are computed), data lineage details should be readily available.

# WHAT TO LOOK FOR IN A BI VENDOR

## EXAMINE THE PROVIDER BEHIND THE PACKAGE

When selecting a business intelligence vendor, it's important to consider many factors – including experience, reputation, and stability – as well as the vendor's professional services capabilities and the quality and strength of its partnerships.

Among the most important of these considerations are:

- A vendor's education and training capabilities. While many vendors offer on-site and in-house training, a few have developed self-paced computer-based training that can assist new users in getting started or help experienced users quickly master advanced product functionality.
- A proven track record and a history of successful growth – both in revenue and in capabilities. Solid growth and profitability can indicate astute management and product acceptance. It allows the vendor to better serve its customers and invest in the future.
- A history of acquiring complementary technology and successfully integrating it with its own. Such a vendor is likely to be able to react quickly to new market demands and to supply the technology your company needs – both now and in the future.
- A history of vision and innovation. A vendor with a proven track record of innovation and industry leadership is likely not only to meet the current needs of its customers but also to anticipate and meet their future requirements.
- Reputation and ability as a BI specialist. As BI usage increases, it's likely that your organization will deploy it against additional systems and additional databases. While a database vendor may offer its own proprietary BI technology, what happens when your organization decides to use another database? You need a BI specialist that can handle a wide variety of data sources.
- Multiple delivery options. While many vendors only allow you to license their products to run on your company's servers, others provide on-demand or software-as-a-service (SaaS) options. In this scenario, the vendor hosts the software on its own servers, and your organization uses it through Web browsers. The SaaS model can be especially appealing to small companies that wish to minimize upfront startup costs while still having the ability to bring the software in-house at a future time when it would make economic sense.
- A large cadre of partners – both software vendors and consultants. One measure of "openness" is the number of other software products that a BI tool works with. A vendor that actively encourages partnerships is likely to have little problem integrating its technology with your current and future software environments. Vendors with a strong base of consulting partners make it easier to find outside expertise should your organization have special requirements.
- A vendor with a product set that provides a strong growth path. Your organization needs a solution that works in multiple operational systems and data warehousing environments to provide maximum deployment flexibility.
- A successful track record and extensive experience with organizations of all sizes. Your organization will likely grow and expand. It may not be a giant today, but it could be one tomorrow. Choose a vendor that you can grow with.
- A multinational presence. If you expect to operate on an international scale someday, you need a vendor that does the same.

Beginning a BI initiative is not necessarily expensive, especially if you choose a vendor with a suite of products that allow you to easily expand your BI usage and implement the tools you need as your business continues to grow and expand.

# CONCLUSION

## IMPROVE ORGANIZATIONAL RESULTS WITH BUSINESS INTELLIGENCE

Business intelligence allows business users to analyze and better understand their organization's plans and results. It provides insight into what's working correctly while identifying potential problem areas in time for corrective actions to be taken. It can be used to recognize opportunities as well as problems and alert your organization to potential issues when exception conditions occur.

All employees have the responsibility to make the best decisions possible, based upon the data available to them at the time. If their ability to analyze this data and transform it into useful information is improved, the overall quality of their decisions can be improved as well.

Business intelligence provides a spectrum of tools and solutions to achieve this. It's the underlying technology behind, and a key component for, more effective decision making. Helping to align individual and departmental efforts with overall corporate strategies should lead to improved organizational results.

While many small businesses and midsize companies have relied on spreadsheets as their primary BI tool, most of them have come to realize that this is a stopgap solution and one that's apt to lead to data chaos and inconsistent analysis results. This is not to say that spreadsheets should be abandoned; rather they can be a part of an organization's BI tool set, especially if used in conjunction with a commercial BI product suite that integrates with spreadsheet environments.

Shouldn't your organization be using business intelligence technology to help it run its business more intelligently?



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