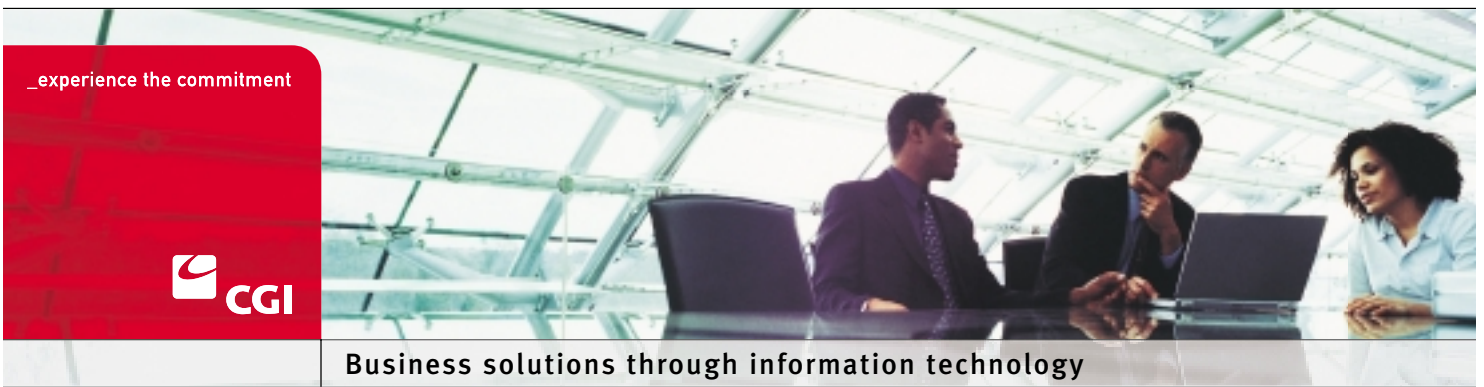


Business Intelligence – Enabling Transparency across the Enterprise



_experience the commitment



Business solutions through information technology

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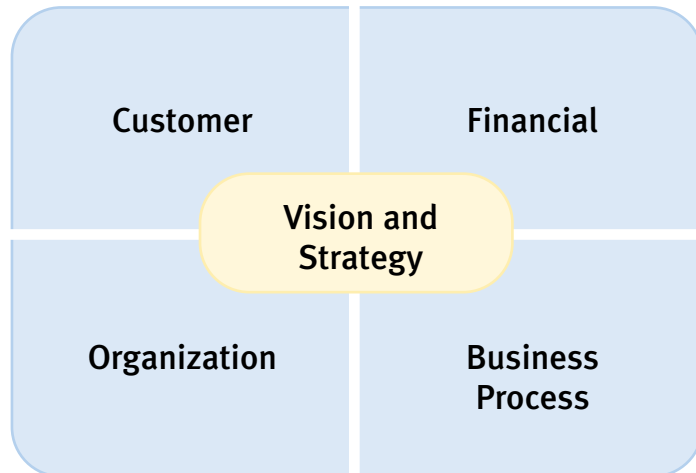
Defining the Strategic Context

Business Case for Business Intelligence

One of the largest hurdles an enterprise faces in ensuring that operational performance and direction meet with strategic vision is the need to efficiently and accurately measure and analyze corporate performance at the strategic and tactical levels. A successful enterprise tends to collect large amounts of data during the course of daily operations. Often, this data is even captured for later use in a data store. However, the frequent lack of definition of proper performance metrics and deficient reporting and analysis capabilities result in difficulty translating this data into usable and actionable information.

Organizations struggle with securing, from daily operations, the key metrics that can provide predictive capabilities to the management team. The underlying premise of Business Intelligence (BI) is that organizations should expand the types of information used to monitor their business operation while more narrowly focusing on a limited subset of that information to direct management focus. Investments in financial reporting systems have led to an over-emphasis of monitoring that financial information as a predictive indicator. Generally, financial systems are the system of record for historical financial transactions. Only when this information is combined with measures of ongoing business operations can it be used to predict future business results.

The challenges in identifying the information required to efficiently and effectively manage an organization can be minimized through the use of method and frameworks that can accelerate the process and provide focused guidance. Organizations must identify the applicable measures for their business and define an organizational framework for how the measures are represented across the enterprise.



Although it seems logical to first identify the measures, the more appropriate approach is to first define the overall performance management methodology under which to organize and communicate the measures. As an example, when organizations attempt to identify their performance measures, they typically focus first on financial performance, sales, and then possibly what they sell, a variation of product line analysis. Holistically, an organization must focus on the measures that impact both their short and long-term health. An organization succeeds by applying appropriate emphasis on measures that predict financial viability, customer penetration, operational efficiency, and organizational maturity and growth. Simply put setting goals for each of these areas and measuring your attainment provides the framework for balanced growth of an organization. An organization's priority should be on

establishing the organizational framework of the types of information to be measured followed by the actual identification of the applicable measures in each area.

Existing methodologies can be adopted in part or whole, such as the Balanced Scorecard, to provide a structure similar the one discussed above. Absent a predefined method, organizations should at a minimum ensure their approach adequately addresses both short and long-term objectives.

Organizations may want to leverage various industry standard frameworks or benchmarking organizations to provide a “straw man” list of potential indicators to validate their potential indicators. Examples of industry frameworks include the Supply Chain Operations Reference Model (SCOR), Collaborative Planning Forecasting and Replenishment (CPFR), and Collaborative Product Creation (CSC). Examples of benchmarking organizations are the Sales Force Effectiveness Benchmarking Association (SFEBA) and International Call Center Benchmarking Consortium (ICCBC). While leveraging this information will accelerate the process and are useful to provide substantive examples, the process to identify the appropriate measures must include linkage to organizational strategies and objectives.

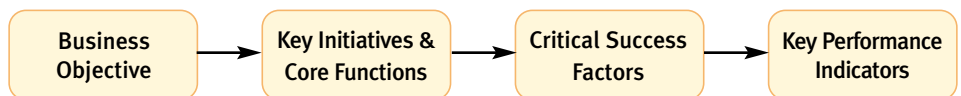
While recent advances in technology have provided new tools and capabilities to collect, distribute, and access information, organizations are overwhelmed with more data and have greater difficulty identifying what information should be monitored. Business Intelligence should be viewed as a logical extension to an organization’s key systems of record (i.e, ERP, Order Entry, etc.). Leveraging data into aggregated, focused information allows organizations to capitalize on the greater depth and breadth of information available in current systems. Recognizing that business intelligence is a pervasive need of all organizations, Gartner Group, a leading industry research organization, has stated that organizations undertaking business intelligence initiatives with a defined business intelligence framework will experience a return of 2 to 3 times greater than those that do not.

CGI Approach for Business Intelligence

CGI’s approach to Business Intelligence addresses, in a holistic fashion, the issues of information that is obscured, widely distributed and inaccessible to an enterprise’s knowledge workers. In order to maintain consistency with the overarching strategic objectives of the enterprise, corporate key performance indicators and the resulting information requirements drive the supporting Business Intelligence initiatives.

The initial component in ensuring strategic alignment for the Business Intelligence initiatives is the establishment of key performance indicators (KPIs) that need to be measured on a corporate or functional basis. Each of these metrics measures some aspect of operational or strategic performance of the organization.

To ensure alignment with key business objectives, KPI identification is founded on a top-down approach that begins with the organizational objectives, identifies the relevant initiatives and functions and their critical success factors (CSFs) while defining the appropriate metrics for measurement. This process is relevant at an enterprise level as well as at a business function level.



Each KPI must be validated to ensure its respective applicability. The following questions should be asked of each proposed measure:

- Can action be taken as a result of the measure?
- Is the measure understandable across the organization?
- Does the measure represent something that can be measured?
- Can a performance threshold be established for the measure?
- Does the measure represent a high impact to the organization?
- Is the data available to support the measure?

The subsequent phases of the approach extend the effort to determine the most optimal methods for integrating the enterprise’s supporting data, validating it and applying the necessary components of the CGI Business Intelligence Framework to it.

The CGI Business Intelligence Framework provides a logical representation of the necessary components to deliver the range of potential Business Intelligence solutions that may be leveraged. Using the framework, CGI designs and delivers solutions that address the strategic and operational Business Intelligence requirements of an organization. Each layer in the framework is an abstracted view that represents a grouping of tools, technologies and processes that cohesively provide a subset of functionality.

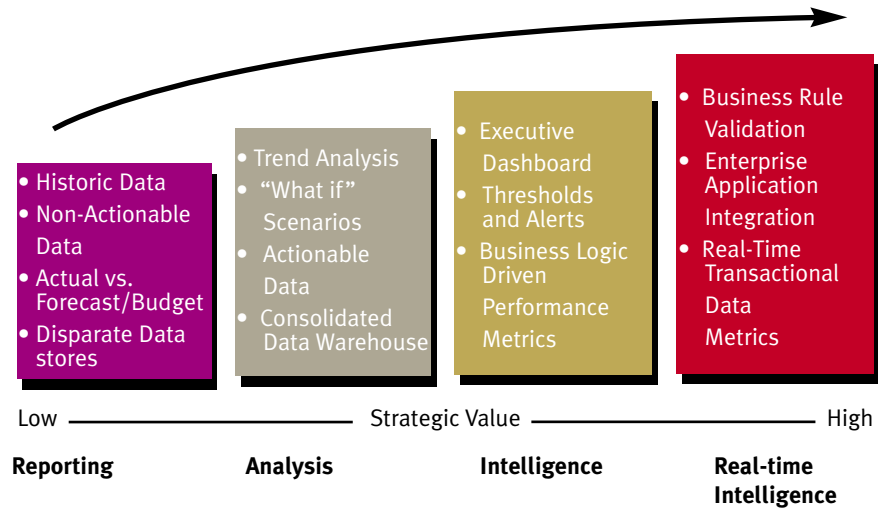


Data flows from the bottom of the framework upward. This path enables a transformation of the data whereby it becomes actionable information and ultimately is refined into its core enterprise intelligence subsets:

- **Data Sources:** Structured data sources, including operational systems (systems of record), data warehouses/data marts, third-party data feeds, flat files and others
- **Integration:** Data level and message-oriented integration to facilitate virtualized data views and near-time data access
- **Analytics:** Formulaic processing of data, including data mining, to produce output meaningful in a functional or strategic context
- **Reporting:** Automated or ad hoc mechanism for queries and formatting of data and analytic output meaningful to knowledge workers
- **Business Rules:** Application of business semantics to data and analytic output capable of making rule-driven assessments and triggering further actions
- **Workflow:** Coordination of multiple triggered processes, potentially including manual and application-level

- Alerts: Triggering of specific notification events from visual notation in the user interface to messaging and workflow
- Scorecard: Application of KPI metrics to intelligence for measurement of functional or corporate performance, including process-oriented mechanisms such as Balanced Scorecard and technology-oriented mechanisms such as digital dashboards

CGI recognizes that Business Intelligence is not an all-or-nothing proposition. The CGI Business Intelligence approach proposes an evolutionary development. Certain characteristics of Business Intelligence solutions can be logically grouped together and describe four general stages of maturity that are depicted below in the Business Intelligence Maturity Model.



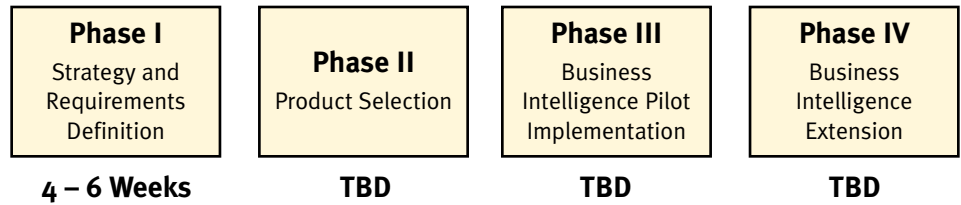
In accordance with the intelligence requirements of the enterprise, CGI can recommend a point on this maturity curve that prescriptively suggests a set of initiatives that should be undertaken. This future state is then mapped against the Business Intelligence Framework and key performance indicators to begin designing the optimal solution. Additionally, CGI understands that BI can be a fundamental shift in how an organization manages; therefore we typically recommended that specific pilot areas are identified which represent the greatest potential for benefit as well successful implementation. This approach establishes a foundation upon which additional initiatives can be built.

CGI project Approach

CGI’s holistic approach for Business Intelligence is predicated on delivering a well-defined, high impact, and targeted path toward creating a business intelligence environment. Our processes focus on facilitating an understanding of business intelligence concepts and approach, developing requirements and a future vision for the organization’s reporting, analytics or business activity management requirements selecting appropriate software solutions, developing the organization’s BI solution, and delivering it to the user community. This section summarizes the project phases required to implement an effective BI solution. It explains how we create awareness and understanding among stakeholders, gather requirements from users and sponsorship, help the organization select the product(s), and proceed with implementing a BI solution that provides value to the organization.

The complete approach for implementing a BI solution within the organization is outlined, and the initial tasks in Phase I – Approach and Requirements Definition are fleshed out in more detail. The total lifecycle, including Phases II – IV, are given to ensure the reader is familiar with CGI’s complete lifecycle approach.

The project is organized into four phases, enabling the organization to realize baseline functionality while providing for deepening and extending BI functionality as demands evolve and grow.

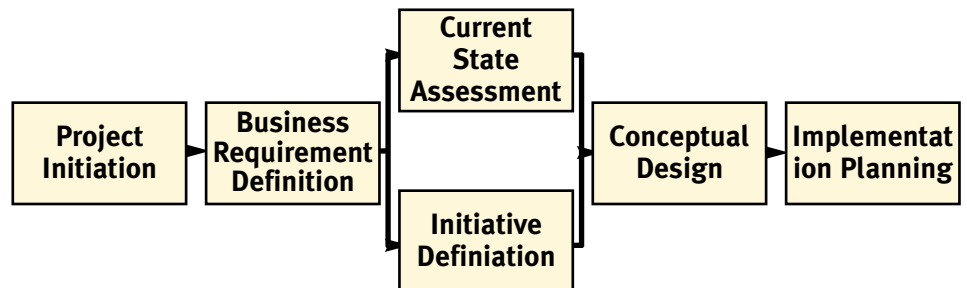


Phase I – Strategy and Requirements Definition

Phase I Approach

Phase I activities will result in the definition of the organization’s Enterprise Business Intelligence Approach, Enterprise Level Requirements, Detail Requirements for the pilot areas, and an Implementation Plan. Phase I activities will occur as follows:

- **Project Initiation** will include project organization activities such as scope and deliverable, confirmation, team organization, and a kick-off meeting.
- **Business Requirements Definition** will identify the organizational management reporting requirements. The team will engage the organization’s key stakeholders through group facilitated sessions and individual interviews to first identify enterprise level requirements and then business function level requirements. The analysis approach will ensure the alignment of the KPIs with the organization’s key business objectives, strategic initiatives, and core business functions. Upon the completion of enterprise level requirements, CGI will work with the organization to identify two key areas of focus for the pilot implementation. The pilot should focus on areas where historically the lack of information has presented problems or areas that will be highly visible but low risk. CGI will conduct further interviews to define the requirements for these areas.
- **Current State Assessment** will analyze the organization’s current business intelligence environment. CGI recognizes that many organizations engaging in a formal BI initiative may currently have minimum capabilities in this area. The assessment activities will focus on the review of the organization’s technical architecture, utilizing the BI Framework, to understand which components may be leveraged in an enhanced environment. Assessment will include understanding integration methods and file structures for the organization’s key systems of record (i.e., ERP, Supply Chain, CRM, Point of Sale, line-of-business applications, etc.) Additionally, the team will review the state of reporting within the organization and processes supporting the reporting activities.



- **Conceptual Design** includes activities required to identify the discrete BI components of the organization’s BI solution. This is the first comprehensive look at the BI components, supporting processes and infrastructure in context with one another. Topics addressed in

this phase include those oriented toward data, conversion of data into actionable information and access to the information. Data topics cover acquisition of the proper data, the level of granularity/summarization required and time variance. Information conversion topics cover analytics, application of business rules and thresholds as well as association with the organizational hierarchy or functional context. Data access topics cover the user tools available for knowledge workers including alerting, reporting and analytics clients, integration with portals, personalization and security.

- **Initiative Definition** will identify the required technology, application, and process related initiatives, logically grouped into projects, to implement the organization's BI Framework and the initial BI Pilot Solution.
- **Implementation Strategy** will leverage the information captured or generated during the project to develop an implementation plan. The plan will articulate a viable framework for the go-forward strategy and help maintain the momentum by providing a tangible set of next steps. The initial implementation will include the Pilot BI solution in order to demonstrate value in the overall BI initiative. It will include a fully networked project plan, resource requirements, timeframes, milestones and recommendations for selecting the Pilot user group as well as for testing and evaluation guidelines for the Pilot BI solution.

Phase I Deliverables

CGI's proposed approach for the organization's Business Intelligence Definition initiative will produce project deliverables that establish and document critical decisions, business and high-level system requirements and can be leveraged by implementation teams in the subsequent phases. Major deliverables to be produced for Phase I of the BI Definition Initiative are:

- **Business Requirements** – Document that captures and formalizes business-centric requirements for the organization's BI solution, to guide all subsequent phases and deliverables.
- **Subject Area Diagram** – High-level diagram of business-critical functional areas and logical relationships between them. It establishes a topical framework for the information architecture of the BI solution.
- **Key Performance Indicators** – Document that specifies metrics to address corporate or functional performance, based on analysis of business-critical subject areas and identified areas of opportunity.
- **Reporting Requirements** – Document that articulates end user reporting requirements for targeted intelligence, the associated delivery channels, frequency of updates and access methods.
- **Current State BI Architecture Assessment** – Document that identifies, reviews and assesses the state of organization's existing BI components and supporting infrastructure. It also provides a summary of the BI components that may be leveraged in subsequent phases.
- **Conceptual BI Design** – Document that contains the high-level design spec and associated processes for extension of the existing BI components and future components represented in the organization's BI Framework. It also summarizes the integration of source systems and data and the client model into the BI solution.
- **Pilot Recommendation** – Document recommending a limited-scope implementation of BI solution targeted to a single functional area or data set with the goal of achieving a high-return, low-risk result.
- **Implementation Plan** – Document that proposes the next steps for implementation of the Pilot BI solution. Included in this document are the project plan, resource requirements and cost estimates.

Phase II – Product Selection

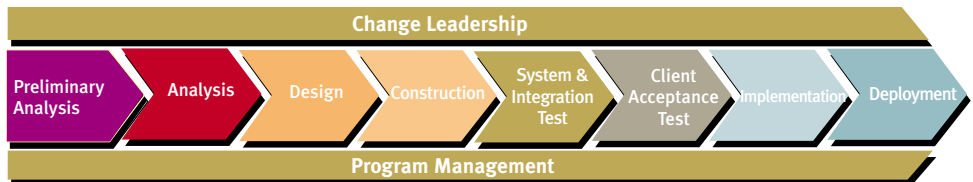
Phase II will center on selection and acquisition of the software solutions to support recommended frameworks as identified in Phase I. The actual duration and level of effort required to complete these activities will be identified as a part of the Phase I - Implementation Planning activities. Typically, this phase is abbreviated and the timetable is wholly dependant on the user’s ability to quickly finalize their product selection.

Products selected during this phase map to specific layers of the CGI BI Framework, represented in the section CGI Business Intelligence Approach, to provide any required functionality missing from the current technology portfolio, as determined during the Current State Architecture Assessment.

- Products considered during this phase may include:
- Portal and presentation layer applications
- Reporting and query tools
- Business rules engines
- Integration brokers for workflow and process coordination
- OLAP or functionally-specific analytics engines
- Data and application-layer integration tools
- ETL tools
- Data warehousing platforms

Phase III – Business Intelligence Pilot Implementation

Phase III will focus on pilot BI delivery. Phase III will begin with the Analysis sub-phase, recognizing that preliminary analysis activities for the pilot were completed in Phase I activities. Implementation of additional BI solutions beyond the scope to the pilot should leverage the full implementation methodology. Included in the implementation activities will be all required data extract routines, data cleansing for consistency and integrity, and data transformation.



- **Preliminary Analysis** activities for the pilot scope were completed in Phase I. Subsequent BI solution implementation activities will require this sub-phase, which represents solution conception and requirements definition.
- **Analysis** activities focus on translating requirements into detailed technical specifications for development and implementation of the BI solution.
- **Design** will focus on producing the detailed architecture, BI design, and Construction Plan. CGI will develop plans in line with the direction established in Phase I.
- **Construction** will produce executable system components that properly reflect the design in accordance with the Construction Plan.
- **System & Integration Test** will construct the system by progressively adding increments and testing each resulting assembly to ensure it operates properly. Upon integration of all required components, CGI will perform complete testing of all system components to verify that they execute properly, and interface correctly among themselves and with related applications.

- **Client Acceptance Test** will demonstrate that the new BI solution meets all client acceptance criteria prior to finalization of rollout materials and delivery of the system and its underlying infrastructure.
- **Implementation** will deliver the BI solution and its supporting infrastructure to the user community and technical environment.
- **Deployment** will focus on planning and execution of Implementation Phase activities to enable rollout to multiple sites.

In addition to the implementation framework that structures project activities, CGI uses a proven change leadership methodology to deliver solutions to corporations. CGI's philosophy is to manage project risk and ensure a smooth transition by minimizing service disruptions and securing early acceptance from a firm's personnel. Our proactive partnering approach is focused on inducing the right people to agree on specific problems and to identify the right solutions. Our experience confirms that a successful BI implementation requires a carefully coordinated transition of people, process, and technology. Change Leadership aligns these three elements to enhance mutual support, achieve objectives, and promote an orderly, evolutionary transition resulting in earlier acceptance of the products we chose together.

The approach is simple – provide consistent and frequent communications in efforts to secure user acceptance and minimize the spread of incorrect information. Any large-scale implementation, including the organization's BI Initiative, will experience initial resistance from some users. Most people resist change, particularly changes in technology and core business processes. Once comfortable in their daily routines, users find it disruptive and unsettling to learn or utilize new systems. This is where CGI's Change Leadership Methodology provides an approach for managing the expectations of corporate stakeholders and employees.

CGI focuses Change Leadership efforts in the following three primary areas: Assessment, Communications, and Knowledge Transfer.

- **Assessment** – CGI will collect information about transition readiness, transition impacts, and communication and training needs. Readiness and impact assessments support Change Leadership planning and feed into communications and training by identifying barriers and impacts that must be addressed to ensure a smooth transition.
- **Communication** – Transformation efforts result in many questions and concerns from those stakeholders directly or indirectly affected by the changes introduced by a portal. Employees, managers, and executives are all curious and often uncertain about the changes they see going on around them and the changes they hear about but do not see. Therefore, CGI will establish a formal communication program to inform all necessary personnel about changes and the resulting impact on individuals' roles.
- **Delivery** – Having developed a communications strategy and linked tasks to key project milestones, CGI will deliver a targeted change leadership campaign to the organizational community. Multiple media and varied descriptions of the case for change will be used to enhance the likelihood that all levels of employees recognize and support the project. By executing an internal communication plan, a corporation will give its employees an opportunity to learn about and further leverage the investment in the new technology and processes encompassed in a fully realized portal implementation.

Phase IV – Business Intelligence Extension

Recognizing that the pilot focused on two key areas that represented “quick hits”, Phase IV should include the identification, definition, development, and implementation of the full enterprise level BI requirements. The pilot effectively demonstrated the value of the BI Framework and the full BI implementation can proceed. These activities may include expanding the functionality of the pilot implementation as well as the planned evolution of the organization’s BI environment. Phase IV activities will leverage the activities represented in the Concert methodology, recognizing that additional Preliminary Analysis activities are required to expand the enterprise level requirements.

Conclusion

One of the largest hurdles an enterprise faces in ensuring that operational performance and direction meet with strategic vision is the need to efficiently and accurately measure and analyze corporate performance at the strategic and tactical levels. However, the frequent lack of definition of proper performance metrics and deficient reporting and analysis capabilities result in difficulty translating this data into usable and actionable information. Organizations must identify the applicable measures for their business and define an organizational framework for how the measures are represented across the enterprise.

CGI’s approach to Business Intelligence addresses, in a holistic fashion, the issues of information that is obscured, widely distributed and inaccessible to an enterprise’s knowledge workers. We offer a framework and associated methodology to implement BI for our clients based on their specific needs. The four phases of our project approach cover planning, design, implementation and BI extension to handle present and future needs.

About CGI

Founded 1976, CGI has worked with clients in a wide range of industries to help them leverage the strengths of information technology (IT) to optimize their business performance and produce value-driven results. We also offer a comprehensive array of business process outsourcing (BPO) services, enabling us to help manage and improve our clients’ day-to-day business processes while freeing them up to focus more on strategic decision making. Our consulting, systems integration and outsourcing services provide a total solution package designed to meet our clients’ complete business and technology needs. We approach every engagement with one objective in mind—to help our client win and grow. CGI provides services to clients worldwide from offices in Canada, the United States, Europe, as well as centers of excellence in India and Canada.

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