A white and gold logo

Description automatically generated

e

**CGI Inc. Final Project Report**





Simon Sarkodie 8960492

Mohana Dutta 8990773

Ya-Jwu Jang 9015996

Meet Rajendrakumar Patel 9019384

Vasukrishna Ashokkumar Bhalodia 9018135

**Capstone Project**

**December 4, 2025**

**BLAIR MOCH | INFO8687 | SECTION 1**

Table of Contents

[**1.** **EXECUTIVE SUMMARY** 8](#_Toc215695687)

[**1.1.** **OVERVIEW: PENTAGON NEXUS CONSULTING GROUP** 8](#_Toc215695688)

[**1.2.** **TOP 5 CLIENTS** 8](#_Toc215695689)

[**1.3.** **VISION STATEMENT** 8](#_Toc215695690)

[**1.4.** **MISSION STATEMENT** 8](#_Toc215695691)

[**1.5.** **LEADERSHIP STRUCTURE** 9](#_Toc215695692)

[**1.6.** **MARKET SHARE AND POSITION** 9](#_Toc215695693)

[**1.7.** **2025 FINANCIAL PERFORMANCE** 10](#_Toc215695694)

[**1.7.1.** **KEY FINANCIAL RESULTS (2025)** 10](#_Toc215695695)

[**1.7.2.** **REVENUE BREAKDOWN BY INDUSTRY SECTOR (2025)** 10](#_Toc215695696)

[**1.7.3.** **HOW CGI INC. BECAME OUR CLIENT** 11](#_Toc215695697)

[**2.** **COMPANY OVERVIEW: CGI INC.** 11](#_Toc215695699)

[**2.1.** **VISION** 11](#_Toc215695700)

[**2.2.** **MISSION STATEMENT** 12](#_Toc215695701)

[**2.3.** **DREAMS** 12](#_Toc215695702)

[**2.4.** **ORGANIZATIONAL AND EXECUTIVE LEADERSHIP STRUCTURE** 12](#_Toc215695703)

[**2.4.1.** **ORGANIZATIONAL STRUCTURE** 12](#_Toc215695704)

[**2.4.2.** **EXECUTIVE LEADERSHIP TEAM** (CGI Inc., 2025d) 13](#_Toc215695705)

[**2.5.** **FINANCIAL STATUS** 14](#_Toc215695706)

[**2.6.** **MARKET SHARE** 15](#_Toc215695707)

[**2.7.** **CURRENT MAJOR STRATEGIC INITIATIVES** 16](#_Toc215695708)

[**2.8.** **OPERATING EXPENDITURES (IT & OPERATIONS)** 16](#_Toc215695709)

[**3.** **COMPETITIVE ANALYSIS** 17](#_Toc215695710)

[**3.1.** **CHOICE OF COMPETITORS** 17](#_Toc215695712)

[**3.2.** **SWOT ANALYSIS** 17](#_Toc215695719)

[**3.2.1.** **CGI (INFORMATION TECHNOLOGY & CONSULTING)** 17](#_Toc215695720)

[**3.2.2.** **OPENTEXT (ENTERPRISE INFORMATION MANAGEMENT & CLOUD SOFTWARE)** 18](#_Toc215695721)

[**3.2.3.** **SHOPIFY (E-COMMERCE PLATFORM)** 20](#_Toc215695722)

[**3.2.4.** **CONSTELLATION SOFTWARE INC. (VERTICAL MARKET SOFTWARE)** 21](#_Toc215695723)

[**3.3.** **PESTEL ANALYSIS** 22](#_Toc215695724)

[**3.3.1.** **CGI INC.** 22](#_Toc215695725)

[**3.3.2.** **SHOPIFY** 23](#_Toc215695726)

[**3.3.3.** **OPENTEXT** 23](#_Toc215695727)

[**3.3.4.** **CONSTELLATION SOFTWARE** 24](#_Toc215695728)

[**3.4.** **BALANCE SCORE CARD** 25](#_Toc215695729)

[**3.5.** **COMPETITIVE ANLYSIS SUMMARY** 25](#_Toc215695730)

[**4.** **DESCRIPTION OF THE PROBLEM TO BE SOLVED** 26](#_Toc215695731)

[**4.1.** **INTRODUCTION** 26](#_Toc215695733)

[**4.2.** **PROBLEM STATEMENT** 26](#_Toc215695734)

[**4.3.** **DESIRED FUTURE STATE** 28](#_Toc215695735)

[**4.4.** **GAP ANALYSIS** 28](#_Toc215695736)

[**4.5.** **PLANS MOVING FORWARD** 29](#_Toc215695737)

[**4.6.** **NEXT STEPS** 29](#_Toc215695738)

[**4.7.** **DATA ANALYSIS** 30](#_Toc215695739)

[**5.** **PROJECT SCOPE** 31](#_Toc215695741)

[**5.1.** **OBJECTIVES** 31](#_Toc215695742)

[**5.1.1.** **IN-SCOPE** 32](#_Toc215695743)

[**5.1.2.** **OUT-OF-SCOPE** 32](#_Toc215695744)

[**5.1.3.** **CONSTRAINTS** 32](#_Toc215695745)

[**5.1.4.** **ASSUMPTIONS** 32](#_Toc215695746)

[**5.2.** **PROJECT CHARTER** 33](#_Toc215695747)

[**5.2.1.** **PURPOSE:** 33](#_Toc215695748)

[**5.2.2.** **OBJECTIVES** 33](#_Toc215695749)

[**5.2.3.** **TEAM STRUCTURE** 33](#_Toc215695750)

[**5.2.4.** **MAIN DELIVERABLES** 34](#_Toc215695751)

[**5.2.5.** **CRITICAL SUCCESS FACTORS** 34](#_Toc215695752)

[**5.2.6.** **CONSTRAINTS & RISKS** 34](#_Toc215695753)

[**5.2.7.** **MILESTONES & DATES** 34](#_Toc215695754)

[**5.3.** **BUSINESS ANALYSIS APPROACH** 35](#_Toc215695755)

[**5.3.1.** **PLANNING APPROACH** 35](#_Toc215695756)

[**5.3.2.** **FORMALITY & LEVEL OF DETAIL** 35](#_Toc215695757)

[**5.3.3.** **PROCESS FOR PLANNING BA ACTIVITIES** 35](#_Toc215695758)

[**5.3.4.** **TIMING OF BA WORK** 36](#_Toc215695759)

[**5.3.5.** **WORK BREAKDOWN STRUCTURE** 36](#_Toc215695760)

[**5.3.6.** **GANTT CHART** 37](#_Toc215695761)

[**5.4.** **STAKEHOLDER ENGAGEMENT PLAN** 37](#_Toc215695762)

[**6.** **REQUEST FOR INFORMATION (RFI) & BUSINESS REQUIREMENTS** 39](#_Toc215695763)

[**6.1.** **PURPOSE OF RFI** 39](#_Toc215695764)

[**6.1.1.** **INFORMATION REQUESTED** 39](#_Toc215695765)

[**6.2.** **BUSINESS REQUIREMENTS - CGI DIGITAL HEALTH COMPANION** 41](#_Toc215695766)

[**6.2.1.** **BUSINESS OBJECTIVES (BO)** 41](#_Toc215695767)

[**6.2.2.** **SUCCESS METRICS (SM)** 41](#_Toc215695768)

[**6.2.3.** **BUSINESS RISKS (BR)** 42](#_Toc215695769)

[**6.2.4.** **ASSUMPTIONS (AS)** 42](#_Toc215695770)

[**6.2.5.** **DEPENDENCIES (DE)** 43](#_Toc215695771)

[**7.** **AS-IS PROCESS FLOWS: OVERVIEW** 43](#_Toc215695772)

[**7.1.** **AS-IS PROCESS SWIMLANE DIAGRAM** 44](#_Toc215695773)

[**7.1.1.** **HEALTHCARE IT SERVICE DELIVERY** 44](#_Toc215695774)

[**7.1.2.** **CLIENT ONBOARDING AND IMPLEMENTATION** 46](#_Toc215695775)

[**7.1.3.** **REVENUE AND BUSINESS MODEL** 48](#_Toc215695776)

[**7.1.4.** **PRODUCT ANALYTICS & CONTINUOUS IMPROVEMENT** 50](#_Toc215695777)

[**7.1.5.** **TECHNICAL SUPPORT & CUSTOMER SERVICE** 52](#_Toc215695778)

[**8.** **FUNCTIONAL REQUIREMENTS** 54](#_Toc215695779)

[**8.1.** **CONTINUOUS HEALTH MONITORING** 54](#_Toc215695780)

[**8.2.** **INTEGRATION COMPONENTS** 55](#_Toc215695781)

[**8.3.** **MEDICATION AND CARE PLAN REMINDERS** 57](#_Toc215695782)

[**8.4.** **PROVIDER AND CUSTOMER CONNECTIVITY** 58](#_Toc215695783)

[**8.5.** **PERSONALIZED AI HEALTH INSIGHTS** 60](#_Toc215695784)

[**8.6.** **UNIVERSAL DATA INTEROPERABILITY** 61](#_Toc215695785)

[**8.7.** **PRIVACY AND SECURITY** 63](#_Toc215695786)

[**8.8.** **BILLING & PAYMENT SYSTEM** 64](#_Toc215695787)

[**9.** **NON-FUNCTIONAL REQUIREMENTS** 65](#_Toc215695788)

[**9.1.** **PERFORMANCE** 65](#_Toc215695789)

[**9.2.** **AVAILABILITY & RELIABILITY** 66](#_Toc215695790)

[**9.3.** **ACCESSIBILITY & USABILITY** 67](#_Toc215695791)

[**9.4.** **SCALABILITY** 68](#_Toc215695792)

[**9.5.** **COMPATIBILITY** 69](#_Toc215695793)

[**9.6.** **MAINTAINABILITY** 70](#_Toc215695794)

[**9.7.** **BACKUP & RECOVERY** 71](#_Toc215695795)

[**9.8.** **SECURITY QUALITY** 72](#_Toc215695796)

[**9.9.** **SYSTEM INTEGRATION QUALITY** 73](#_Toc215695797)

[**9.10.** **OFFLINE OPERATION** 74](#_Toc215695798)

[**10.** **POSSIBLE SOLUTIONS OPTIONS** 75](#_Toc215695799)

[**10.1.** **SUMMARY OF EXISTING FUNCTIONALITY** 75](#_Toc215695800)

[**10.2.** **REQUIREMENT DETAILS** 75](#_Toc215695801)

[**10.3.** **ASSUMPTIONS AND PREREQUISITES** 75](#_Toc215695802)

[**10.4.** **POSSIBLE SOLUTION #1 – (CGI DIGITAL HEALTH COMPANION)** 76](#_Toc215695803)

[**10.4.1.** **HIGH-LEVEL DESIGN** 76](#_Toc215695804)

[**10.4.2.** **SYSTEM OVERVIEW** 76](#_Toc215695805)

[**10.4.3.** **MAIN COMPONENTS** 76](#_Toc215695806)

[**10.4.4.** **LOW-LEVEL DESIGN** 78](#_Toc215695807)

[**10.4.5.** **IMPACT ANALYSIS** 78](#_Toc215695808)

[**10.4.6.** **OUT OF SCOPE** 79](#_Toc215695809)

[**10.4.7.** **RISK AND MITIGATION** 80](#_Toc215695810)

[**10.5.** **POSSIBLE SOLUTION #3 – (DO NOTHING METHOD)** 81](#_Toc215695811)

[**10.5.1.** **IMPACT ANALYSIS** 81](#_Toc215695812)

[**10.5.2.** **RISK AND MITIGATION** 82](#_Toc215695813)

[**10.6.** **EVALUATION CRITERIA** 84](#_Toc215695814)

[**11.** **SOLUTION DESIGN** 85](#_Toc215695815)

[**11.1.** **PURPOSE OF EACH TABLE (ENTITY)** 86](#_Toc215695816)

[**11.2.** **RANGE OF VALUES** 87](#_Toc215695817)

[**11.3.** **PRIMARY KEYS (PK) PER TABLE** 90](#_Toc215695818)

[**11.4.** **FOREIGN KEYS (FK) AND RELATIONSHIPS** 91](#_Toc215695819)

[**11.1.** **NORMALIZATION** 92](#_Toc215695820)

[**12.** **SOLUTION OPTIONS** 94](#_Toc215695821)

[**12.1.** **OPTION 1 – BUILD THE CGI DIGITAL HEALTH COMPANION** 94](#_Toc215695822)

[**12.1.1.** **FIVE-YEAR ROI SUMMARY** 94](#_Toc215695823)

[**12.2.** **OPTION 2 – “DO NOTHING” (BASELINE)** 95](#_Toc215695824)

[**12.2.1.** **FIVE-YEAR ROI SUMMARY** 96](#_Toc215695825)

[**12.3.** **FIVE-YEAR ROI COMPARISON (2025–2029): CGI DIGITAL HEALTH COMPANION VS. BASELINE** 96](#_Toc215695826)

[**12.4.** **EVALUATION SUMMARY** 97](#_Toc215695827)

[**12.5.** **RECOMMENDATION** 98](#_Toc215695828)

[**12.6.** **TO-BE PROCESS FLOW** 98](#_Toc215695829)

[**13.** **RISK MANAGEMENT PLAN** 100](#_Toc215695830)

[**14.** **IMPLEMENTATION/DEPLOYMENT STRATEGY** 102](#_Toc215695831)

[**16.1.** **DEPLOYMENT APPROACH** 102](#_Toc215695834)

[**16.2.** **MIGRATION & DATA READINESS** 102](#_Toc215695835)

[**16.3.** **TRAINING AND SUPPORT** 102](#_Toc215695836)

[**16.4.** **BACKOUT / CONTINGENCY PLAN** 103](#_Toc215695837)

[**16.5.** **GOVERNANCE & COMPLIANCE** 103](#_Toc215695838)

[**16.6.** **POST IMPLEMENTATION REVIEW** 103](#_Toc215695839)

[**17.** **TRANSITION REQUIREMENTS** 103](#_Toc215695840)

[**17.1.** **ONGOING SUPPORT (PROVIDED BY OUR TEAM)** 104](#_Toc215695841)

[**17.1.1.** **LEVEL 3 TECHNICAL SUPPORT** 104](#_Toc215695842)

[**17.1.2.** **INTEGRATION MANAGEMENT** 104](#_Toc215695843)

[**17.1.3.** **AI MODEL MAINTENANCE** 104](#_Toc215695844)

[**17.1.4.** **RELEASE & ENHANCEMENT SUPPORT** 104](#_Toc215695845)

[**17.2.** **CGI OWNERSHIP & GOVERNANCE RESPONSIBILITIES** 105](#_Toc215695846)

[**17.2.1.** **PLATFORM GOVERNANCE** 105](#_Toc215695847)

[**17.2.2.** **HOSTING & INFRASTRUCTURE** 105](#_Toc215695848)

[**17.2.3.** **OPERATIONAL REPORTING** 105](#_Toc215695849)

[**17.2.4.** **DATA OWNERSHIP** 105](#_Toc215695850)

[**17.3.** **Support Model (LEVEL 1, LEVEL 2, LEVEL 3 BREAKDOWN)** 105](#_Toc215695851)

[**17.3.1.** **LEVEL 1 SUPPORT — CGI SERVICE DESK (CGI RESPONSIBILITY)** 105](#_Toc215695852)

[**17.3.2.** **LEVEL 2 SUPPORT — CGI APPLICATION SUPPORT (CGI RESPONSIBILITY)** 106](#_Toc215695853)

[**17.3.3.** **LEVEL 3 SUPPORT — OUR TEAM (DEEP TECHNICAL SUPPORT)** 106](#_Toc215695854)

[**18.** **TEST STRATEGY FOR CGI DIGITAL HEALTH COMPANION APP** 106](#_Toc215695855)

[**19.1.** **SCOPE** 106](#_Toc215695857)

[**19.1.1.** **REVIEWERS** 106](#_Toc215695858)

[**19.1.2.** **APPROVAL AUTHORITY** 107](#_Toc215695859)

[**19.1.3.** **TESTING TIMELINES** 107](#_Toc215695860)

[**19.2.** **TESTING APPROACH** 107](#_Toc215695861)

[**19.2.1.** **TESTING LEVELS** 107](#_Toc215695862)

[**19.2.2.** **TESTING TYPES** 108](#_Toc215695863)

[**19.2.3.** **TEST APPROACH** 108](#_Toc215695864)

[**19.2.4.** **ROLES & RESPONSIBILITIES** 108](#_Toc215695865)

[**19.2.5.** **DEFECT MANAGEMENT** 108](#_Toc215695866)

[**19.3.** **TEST ENVIRONMENT** 109](#_Toc215695867)

[**19.4.** **TESTING TOOLS** 109](#_Toc215695868)

[**19.5.** **RELEASE CONTROL** 109](#_Toc215695869)

[**19.6.** **RISK ANALYSIS** 110](#_Toc215695870)

[**19.7.** **REVIEW AND APPROVALS** 110](#_Toc215695871)

[**20.** **REFERENCES** 111](#_Toc215695872)

# **EXECUTIVE SUMMARY**

## **OVERVIEW: PENTAGON NEXUS CONSULTING GROUP**

Founded in **2015**, **Pentagon Nexus Consulting Group (PNCG)** has grown into a recognized IT consulting and digital transformation firm. Headquartered in **Waterloo, Ontario, Canada**, the company has expanded its footprint to include **5 additional offices** across the **Canada**, reflecting its strong presence and growing influence in the technology consulting landscape.

With a workforce of over **1,000 employees**, Pentagon Nexus brings together experts in digital strategy, enterprise solutions, data analytics, cloud modernization, cybersecurity, and user-centric product design. Over the past **10 years**, the firm has supported more than **50** clients, including several recognized organizations across provinces in Canada.

## **TOP 5 CLIENTS**

Our expertise and commitment to excellence have earned us partnerships with major enterprises, including:

* Royal Bank of Canada (RBC)
* Sun Life Financial
* Bell Canada
* NHS Digital
* Ontario Health

## **VISION STATEMENT**

To empower organizations worldwide to achieve digital transformation and sustainable growth through bold leadership, advanced technology, and unwavering commitment to client success.

## **MISSION STATEMENT**

Our mission is to help clients solve complex business challenges and realize strategic opportunities with integrity, adaptability, and measurable impact.

## **LEADERSHIP STRUCTURE**

Pentagon Nexus is led by a diverse, experienced executive team:

* **Project Manager:** Oversees project planning, execution, and delivery, ensuring the team meets objectives, deadlines, and project standards.​
* **Assistant Project Manager:** Supports the Project Manager by coordinating tasks, managing schedules, and tracking project progress to keep operations running smoothly.
* **Business Analysts:** Analyzes business needs, gathers requirements, and provides solutions that align the project’s outcomes with organizational goals.

Our open culture and robust governance model ensure agility, accountability, and continuous growth.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| A person standing at a train station  AI-generated content may be incorrect.**Mohana Dutta**  Project Manager | A person with a mustache  AI-generated content may be incorrect. **Vasukrishna Bhalodia**  Assistant Project Manager | A person with a beard  AI-generated content may be incorrect.  **Meet Patel Rajendrakuma**  Business Analyst | **Simon Addo Sarkodie**  Business Analyst | **Ya-Jwu Jang**  Business Analyst |

## **MARKET SHARE AND POSITION**

Pentagon Nexus holds a strong market position with a client base that includes some of the most recognized organizations in healthcare and finance. Our market share is estimated at 7% of the top-tier enterprise IT consulting sector in Canada, and. Our reputation for delivering value and consistent results makes us the partner of choice for complex, high-impact projects.

While this positions the firm among the top emerging consulting leaders, PNCG differentiates itself through:

* **Deep specializations** in digital health, cloud modernization, and data analytics
* **Strong relationships with public-sector and enterprise clients**
* **A human-centered approach**, ensuring that solutions are designed with real user and stakeholder needs in mind
* **A culture of innovation**, supported by ongoing investment in research, emerging technologies, and AI tools
* **Global delivery capabilities**, allowing large-scale and cross-border implementations

## **2025 FINANCIAL PERFORMANCE**

Pentagon Nexus Consulting Group demonstrated strong financial stability and growth in fiscal year 2025.

### **KEY FINANCIAL RESULTS (2025)**

* **Total Revenue:** CAD **$1.2 billion**
* **Gross Profit:** CAD **$420 million**
* **Operating Margin:** **14.8%**
* **Net Income:** CAD **$122 million**
* **Year-over-Year Revenue Growth:** **8.6%**
* **Cash Reserves:** CAD **$300 million**

### **REVENUE BREAKDOWN BY INDUSTRY SECTOR (2025)**

* **Government & Public Services:** 10%
* **Healthcare Technology & Digital Health:** 34%
* **Financial Services & Insurance:** 23%
* **Retail, Manufacturing & Logistics:** 18%
* **Communications & Utilities:** 15%

Despite competitive pressures, PNCG increased its project pipeline in cloud transformation, modernization of legacy systems, and digital health, three areas projected to see double-digit market growth over the next five years.

### **HOW CGI INC. BECAME OUR CLIENT**

Building on our strong reputation, and consistent delivery of transformative digital solutions, Pentagon Nexus Consulting Group naturally attracted interest from major industry players seeking specialized expertise. Among them was CGI Inc., a leading global IT and business consulting firm known for its extensive government and healthcare portfolio looking for a partner that could support its strategic shift toward scalable digital products.

Pentagon Nexus Consulting Group engaged CGI through targeted executive briefings and a tailored capability presentation. Through workshops and discovery sessions, the team demonstrated a deep understanding of CGI’s reliance on government contracts and its ambition to grow in the private sector. By proposing a concrete roadmap for a Digital Health Companion App and clearly outlining the commercial benefits, risk mitigation, and implementation approach, Pentagon Nexus built trust and positioned itself as a strategic partner rather than just a vendor. CGI selected Pentagon Nexus following a competitive evaluation process, citing our domain expertise, collaborative approach, and alignment with their long-term growth vision.



# **COMPANY OVERVIEW: CGI INC.**

Founded in **1976,** by **Serge Godin** and **Andre Imbeau** and head office in **Montréal, Quebec**, CGI Inc. is a globally recognized IT and business consulting services firm. The company has grown from a small consultancy to one of the largest independent firms in the world, employing over 90,000 professionals across 40 countries and 400 metro markets. CGI’s business model is built on providing an end-to-end portfolio of capabilities, which includes strategic IT and business consulting, systems integration, managed IT and business process services, and intellectual property solutions.

The firm serves a diverse range of industries, including government, financial services, healthcare, and manufacturing, with a strong market presence in North America and Europe. This extensive global reach and comprehensive service offering underpin its ability to help clients accelerate their digital transformation and achieve their business objectives (UMBREX, n.d.; Wikipedia, 2025).

## **VISION**

The company’s vision is "to be a global world-class end-to-end IT and business consulting services leader helping our clients succeed" (CGI Inc., 2025a, para. 3). This overarching strategic goal guides the firm's growth and its aspirations to be a leader in its field.

## **MISSION STATEMENT**

Their mission to help their clients succeed through outstanding quality, competence and objectivity, providing thought leadership and delivering the best services and solutions to fully satisfy client objectives in information technology, business processes, and management. overall, they are guided by their Dream, living by their Values to foster trusted relationships and meet their commitments now and in the future (CGI Inc., 2025a, para. 4).

## **DREAMS**

The core of CGI's culture is its "Dream," which is "to create an environment in which we enjoy working together and, as owners, contribute to building a company we can be proud of" (CGI Inc., 2025a, para. 2). This sense of shared ownership inspires employees to contribute fully, fueling engagement, innovation, and long-term commitment across the organization.

## **ORGANIZATIONAL AND** **EXECUTIVE LEADERSHIP STRUCTURE**

### **ORGANIZATIONAL STRUCTURE**

CGI’s corporate governance is defined by a robust structure and experienced leadership. The company’s Board of Directors is composed of both independent and CGI-related members and is supported by key committees, including the Audit and Risk Management Committee, Corporate Governance Committee, and Human Resources Committee.

The executive team is led by CEO François Boulanger, who was appointed to the role in October 2024. He is supported by Executive Chair Julie Godin and Co-Chair Serge Godin, the company’s founder and controlling shareholder. Serge Godin’s continued presence on the board, with a focus on transformational acquisitions, and his status as the controlling shareholder, indicate a long-term, stable strategic vision that prioritizes sustainable growth over short-term market pressures. This leadership structure provides continuity and ensures that the company’s strategy remains aligned with the long-standing principles that have guided its growth for decades

### **EXECUTIVE LEADERSHIP TEAM** (CGI Inc., 2025d)

|  |  |  |  |
| --- | --- | --- | --- |
| A person in a suit and tie  AI-generated content may be incorrect.**Serge Godin**  Founder of CGI and Co-Chair of the Board of Director | A person with dark hair wearing a black jacket and white shirt  AI-generated content may be incorrect.**Julie Godin**  Executive Chair of the Board of Directors | A person in a suit and tie  AI-generated content may be incorrect.  **François Boulanger**  President and Chief Executive Officer | A person in a suit and tie  AI-generated content may be incorrect.  **Benoit Dubé**  Executive Vice-President, Legal & Economic Affairs, & Corporate Secretary |
| A person in a suit and tie  AI-generated content may be incorrect.  **Steve Perron**  Executive Vice-President and Chief Financial Officer | A person in a suit and tie  AI-generated content may be incorrect.  **Steven Starace**  Senior Vice-President, Human Resources | A person in a suit and tie  AI-generated content may be incorrect.  **Leslie McKay**  Senior Vice-President and Chief Information Officer | A person in a suit and tie  AI-generated content may be incorrect.  **Tim Hurlebaus**  President and Chief Operating Officer |
| A person in a suit and tie  AI-generated content may be incorrect.  **Dave Henderson**  President, Intelligent Solutions and Innovation | A person in a suit and tie  AI-generated content may be incorrect.  **Dave Henderson**  President, Intelligent Solutions and Innovation | **A person wearing glasses and a purple jacket  AI-generated content may be incorrect.**  **Stephanie Mango**  President, CGI Federal | A person with red hair wearing a black jacket and necklace  AI-generated content may be incorrect.  **Susan Balding**  Senior Vice-President, Marketing & Communication |

## **FINANCIAL STATUS**

**Financial Performance & Acquisitions (FY2021 → Q3 FY2025)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Year/ period | Revenue (CAD) | Net Earnings | Adjusted EBIT (Margin) | Operating Cash flow | Booking/ Backlog | Major Acquisitions |
| Q3 FY 2025 (ended July 30, 2025) | C$4.09B (quarter)/ C$15.56B TTM | C$408.6M (Adj. C$470.1M, 11.5% margin) | C$666.1M (16.3%) | C$486.6M (11.9% of rev.) | Bookings C$4.15B (book-to-bill 101.4%); Backlog C$30.58B (~2× rev.) | BJSS (UK); Novatec (Germany/Spain); Apside (France) → bolstered Europe & UK consulting, cloud, AI |
| FY 2024 | C$14.68B (+2.66%) | C$1.69B | ~C$2.35B (16.0%) | ~C$2.0B | Bookings ~C$15.2B / Backlog ~C$28.3B | Celero credit union business (Canada); Daugherty (US, AI/analytics) |
| FY 2023 | C$14.30B (+11.1%) | C$1.63B | ~C$2.27B (15.9%) | ~C$1.9B | Bookings ~C$14.9B / Backlog ~C$26B | Momentum Consulting (US) → expanded U.S. commercial/retail/logistics sector |
| FY 2022 | C$12.87B (+6.1%) | C$1.47B | ~C$2.06B (16.0%) | ~C$1.7B | Bookings ~C$13.5B / Backlog ~C$24B | Umanis (France); Harwell Management (France) → expanded consulting/digital services in Europe |
| FY 2021 | C$12.13B | C$1.37B | ~C$1.96B (16.2%) | ~C$1.6B | Bookings ~C$12.9B / Backlog ~C$23.1B | **—** |

(Investors, 2025; Stock analysis, 2025b; Stock analysis, 2025c; CGI Inc., 2025h,2025i,2025j; Consultancy.Uk., 2022a,2022b; GovConExec International, 2025)

A graph with numbers and lines

AI-generated content may be incorrect.

## **MARKET SHARE**

From Stock Analysis (USD, trailing twelve months):

* **Revenue:** US $11.41 billion
* **Net Income:** US $1.26 billion (EPS: US $5.54)
* **Operating Income (EBIT):** US $1.87 billion
* **Gross Profit:** US $2.30 billion
* **EBITDA:** US $2.04 billion
* **Operating Cash Flow:** US $1.61 billion
* **Capital Expenditures:** US $82.3 million
* **Free Cash Flow:** US $1.51 billion

(Stock Analysis, 2025, p. 1)

## **CURRENT MAJOR STRATEGIC INITIATIVES**

CGI’s strategic direction is centered on a dual approach of organic growth and targeted acquisitions. A key recent development was the acquisition of Aeyon in September 2024, a move specifically designed to expand CGI's capabilities for national security and civilian government agency missions. This acquisition, along with a series of significant contract wins in 2024 with entities such as the U.S. Department of State and the City of New York, demonstrates a deliberate strategy of strengthening its core public sector business. The company is actively pursuing new partnerships and contracts, as evidenced by its work with Michelin and its selection as a technology partner for Canada’s Future Aircrew Training Program.

Beyond its acquisition strategy, CGI is focused on technology-driven initiatives. The firm is actively investing in and promoting its expertise in AI, signing the European Commission's Artificial Intelligence Act Pledge in September 2024. Its R&D efforts in AI, blockchain, and quantum computing aim to future-proof its services and provide clients with solutions for digital transformation and cloud migration, which are projected to be multi-trillion dollar markets by 2026. These strategic moves indicate that CGI is not merely maintaining its current business but is also proactively positioning itself to address the technological demands of the future while doubling down on its area of established competence

(CGI Inc., 2025g)

## **OPERATING EXPENDITURES (IT & OPERATIONS)**

Operating expenses can be defined as the sum of all operating expenses for the given industry.

* CGI operating expenses for the quarter ending June 30, 2025, were **$2.475B**, a **10.32% increase** year-over-year.
* CGI operating expenses for the twelve months ending June 30, 2025, were **$9.335B**, a **3.39% increase** year-over-year.
* CGI annual operating expenses for 2024 were **$9.081B**, a **1.68% increase** from 2023.
* CGI annual operating expenses for 2023 were **$8.931B**, a **5.56% increase** from 2022.
* CGI annual operating expenses for 2022 were **$8.461B**, a **4.95% increase** from 2021.

(Microtrends, 2025, p. 1)

# **COMPETITIVE ANALYSIS**



## **CHOICE OF COMPETITORS**

Chosen based on IT consulting and software sector, TSX-60:

* OpenText (TSX 60): Enterprise Content Management, Software as a Service (SaaS)
* Shopify (TSX 60): Commerce platform, Software as a Service (SaaS).
* Constellation Software Inc. (TSX 60): Vertical market software acquisitions



## **SWOT ANALYSIS**

### **CGI (INFORMATION TECHNOLOGY & CONSULTING)**

**Strengths**

* Strong presence in government contracts (stable, long-term revenue). Consistent revenue growth and financial stability.
* Offers a wide range of solutions, including IT and business consulting, systems integration, and managed IT services.
* Global footprint (400+ offices worldwide). Strong global presence with 88,500 professionals in 21 countries (CGI Inc., 2025b).
* High client retention due to multi-year engagements (CGI Inc., 2025a).

**Weaknesses**

* Heavy dependence on public sector contracts, vulnerable to political changes and budget cuts.
* Limited brand recognition in comparison with the likes of Accenture/Capgemini.
* Large organization due to its global operations, which can slow down decision-making processes (DCFmodeling, 2025).
* Limited diversification in high-growth commercial markets.
* Faces challenges in scaling practices for emerging technologies such as AI and blockchain (CGI Inc., 2025c).

**Opportunities**

* Growth in AI, cloud computing, and cybersecurity solutions.
* Digital transformation demand expansion in banking, healthcare, and utilities.
* Investment opportunities of emerging markets, particularly in the Asia-Pacific and Latin American (Global Banking and Markets, 2024).
* Strategic acquisitions can offer growth opportunities.

(CGI Inc., 2025c)

**Threats**

* Intense competition from global consulting/outsourcing firms (Infosys, TCS, Accenture).
* Risks from technology obsolescence due to the fast pace of innovation.
* Public scrutiny if government IT projects fail.
* Currency fluctuations (global operations).
* Geopolitical and regulatory risks from its global operations (Ysnel, 2024).

(CGI Inc., 2025c)

### **OPENTEXT (ENTERPRISE INFORMATION MANAGEMENT & CLOUD SOFTWARE)**

**Strengths**

* Market leader in enterprise content and information management.
* Strong recurring revenue from subscriptions and cloud services.
* Successful acquisitions (e.g., Micro Focus) to expand portfolio (Clarke, 2023).
* Has a broad portfolio of software solutions in several areas, including content management, business networks, and security.
* Provides secure solutions for critical industries, e.g., healthcare, government, and financial services.

(Opentext, 2025)

**Weaknesses**

* Heavy debt burden due to large mergers and acquisitions.
* High dependence on enterprise IT spending, making the company vulnerable to market fluctuations.
* The complexity of its software can create implementation barriers, particularly for smaller organizations.
* Market pressure from competitors impacting its margins.

(Opentext, 2025)

**Opportunities**

* Growing demand for secure cloud information management.
* Expansion into cybersecurity and AI-driven data solutions (Opentext, 2025).
* Cross-platform enterprise service upselling to corporate customers.

**Threats**

* Competitors in the form of Microsoft (SharePoint), IBM, and Oracle.
* Rapid shifts in cloud tech requiring continuous innovation.
* Slower growth in legacy software revenues.
* Economic slowdowns could lead to a reduction in enterprise IT spending.
* Constant evolution of the cybersecurity threat landscape represents a risk.
* Currency fluctuations can impact revenue.

(Opentext, 2025)

### **SHOPIFY (E-COMMERCE PLATFORM)**

**Strengths**

* Global leader in e-commerce solutions for SMEs.
* Simplified and user-friendly e-commerce platform.
* Robust multi-channel platform enabling selling on online shops, social media, and physical retail stores.
* Strong brand recognition with over 2 million merchants (Singh, 2025).
* Composable platform with diverse ecosystem (payment, logistics, marketing). Very composable to support any size of business.

(Shopify, 2025b)

**Weaknesses**

* High reliance on SME market → revenue sensitive to economic downturns.
* Profitability challenges due to high investment in logistics and product innovation.
* Lower enterprise penetration compared to OpenText and Constellation.
* Limited point of differentiation if a store does not have a distinctive brand.
* Configuration for new store owners might be complex at the outset (Ching, 2024).
* Dependence on online marketing limits visibility across other channels.

**Opportunities**

* Expansion into enterprise e-commerce.
* Growing global digital retail trends. Growth and expansion through strategic partnerships and a growing app store.
* New services (Shopify Payments, AI-driven tools, cross-border commerce) (Davey, 2025).
* Potential to expand into new markets by localizing the platform.
* Reduced interest rates could be a business growth opportunity with cheaper loans.

**Threats**

* Competition from Amazon, Wix, WooCommerce, BigCommerce.
* Global macroeconomic slowdowns affecting SME spending.
* Regulatory pressures on payments and digital commerce.
* Cybersecurity threats and data breaches.
* Consumer behavior changes and evolving shopping habits.

(Shopify, 2025b)

### **CONSTELLATION SOFTWARE INC. (VERTICAL MARKET SOFTWARE)**

**Strengths**

* Highly successful acquisition strategy (hundreds of small/medium software firms), and building vertical market software (VMS) businesses.
* International provider of market-leading software and services.
* Strong track record of profitable growth (Button, 2025).
* Decentralized business model with standalone companies, allowing maximized returns.

**Weaknesses**

* Growth strategy almost entirely dependent on acquisitions.
* Limited organic innovation compared to Shopify and OpenText.
* Lower public visibility and consumer brand recognition.
* Earnings have declined over the past year (Tipranks, 2025).

**Opportunities**

* Continued consolidation of niche software markets worldwide.
* Leveraging portfolio synergies across industries.
* Expansion into emerging markets.
* Its current share price is below its estimated fair value, and this can be a purchase opportunity for investors.

**Threats**

* Rising acquisition costs and competition for targets.
* Integration risks across multiple small companies.
* The company's decentralized organizational structure could be a management problem.
* Economic downturns reducing acquisition opportunities.

(Constellation Software Inc., 2025a; Constellation Software Inc., 2025b)

## **PESTEL ANALYSIS**

### **CGI INC.**

* **Political:** CGI relies on government IT spending. Shifts in public sector priorities and procurement rules have a direct impact, making CGI’s global government relationships both a strength and a critical point of sensitivity.
* **Economic:** Big-picture trends, currency swings, inflation, and client IT budgets—play a major role. Because CGI delivers multi-country contracts, regional economics are always under close watch.
* **Social:** Workforce expectations (hybrid/remote work, upskilling) and clients’ desire for human-centred digital experiences shape hiring and delivery models. CGI’s localized “client-proximity” delivery model is intended to preserve strong client relationships while adapting to changing workplace norms.
* **Technological:** Crafting solutions with AI, automation, and cloud is at the heart of CGI’s strategic evolution. Staying ahead on digital innovation shapes their competitive edge.
* **Environmental:** With sustainability growing in importance, energy-efficient IT and reporting on ESG (Environmental, Social, Governance) practices now feature in both public sector contracts and investor relations.
* **Legal:** Operating worldwide means strict attention to privacy, procurement, and export laws. Ongoing compliance in regions like the EU and North America is seen as a business risk, but also a differentiator.

(CGI Inc., 2025e)

### **SHOPIFY**

* **Political:** Shopify’s global merchant reach means it must follow trade policies and taxation rules closely. Regulatory changes, especially those affecting online platforms, can quickly ripple to their merchant network.
* **Economic:** Shopify’s life blood is small/medium businesses. A slowdown in consumer spending or SME budgets quickly hits revenues, highlighting their exposure to macro cycles.
* **Social:** Shopify’s success is powered by ongoing shifts in how people shop, including the rise of direct purchases, social media-driven commerce, and the desire for quick delivery. In addition, growing consumer concerns about privacy and data tracking shape the tools and analytics Shopify provides to merchants.
* **Technological:** Innovation is mandatory; new features like AI-driven analytics or payment upgrades keep the platform competitive and merchants engaged.
* **Environmental:** Eco-conscious merchants and shoppers drive Shopify to offer sustainability reporting and carbon-focused initiatives. This is both a branding and operational priority.
* **Legal:** Shopify faces material risk from privacy lawsuits and changing data regulations, especially in the U.S. and EU. These legal issues can influence how data and tracking tools are designed and deployed.

(Shopify, 2025a)

### **OPENTEXT**

* **Political:** Selling to governments and corporates worldwide means OpenText must design solutions with an eye on local compliance and procurement rules, including data sovereignty requirements.
* **Economic:** Enterprise software is more resilient to downturns, but upgrade and licensing cycles can be delayed during economic turbulence. Steady subscription demand helps buffer volatility.
* **Social:** Businesses today are prioritizing secure data management, efficient remote collaboration, and the digitization of records, all of which boost demand for advanced content management solutions. OpenText meets these needs by putting privacy and security at the heart of its offerings, as highlighted in its corporate reports and product strategy.
* **Technological:** Cybersecurity, AI, and machine learning are central to OpenText’s roadmap. Their ongoing product development matches evolving threats and enterprise information needs.
* **Environmental:** Corporate customers increasingly expect OpenText to disclose and improve sustainability practices; hence, dedicated reporting and operational improvements are ongoing.
* **Legal:** OpenText’s compliance capabilities, including General Data Protection Regulation (GDPR) and sectoral privacy controls are selling points, but also ongoing legal challenges with evolving international regulations.

(Opentext, 2024)

### **CONSTELLATION SOFTWARE**

* **Political:** Constellation's success depends on stable markets and friendly policies that support acquisitions. Political risks in target regions can affect deal flow and portfolio value.
* **Economic:** Its defensive, acquisition-heavy model provides resilience—many acquired businesses are recession-proof due to recurring niche revenues. Still, capital market trends affect acquisition capacity.
* **Social:** Customer loyalty and skilled local teams play a big role post-acquisition. Retaining talent and maintaining trusted relationships helps preserve value in diverse verticals.
* **Technological:** Technology risk is spread across verticals; some portfolio companies lead in cloud/AI, while others lag. Constellation invests in modernization but faces ongoing integration challenges.
* **Environmental:** Environmental exposure is relatively low, though stakeholders increasingly request sustainability efforts and energy-efficient solutions, especially in software hosting.
* **Legal:** Acquisitions in regulated sectors bring active compliance and legal management. Governance in M&A due diligence is highlighted in company disclosures.

(Canvas Business Model, 2025; Constellation Software Inc., 2025c)

## **BALANCE SCORE CARD**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Perspective | CGI Inc. | Shopify | OpenText | Constellation Software |
| Financial | Strong and steady profitability | High growth, volatile profitability | Stable margins, consistent earnings | Consistent returns via aggregation |
| Customer | Broad enterprise clientele | SMBs & marketplaces | Large enterprise and government clients | Vertical market specialists |
| Internal Process | Proven delivery through decentralization | Highly agile software development | Strong R&D integration and AI deployment | Acquisition and product integration success |
| Learning & Growth | Skilled workforce, M&A enhancing capabilities | Innovative culture and rapid scaling | AI/security expertise focus | Integrated expertise across domains |

## **COMPETITIVE ANLYSIS SUMMARY**

* **OpenText**: a world leader in cloud software and enterprise information management. Strong enterprise relationships, a sizable recurring revenue base, and an expanded portfolio through acquisitions (like Micro Focus) are among its strengths. Its heavy debt load and integration risks, however, continue to be obstacles.
* **Shopify**: a leading worldwide e-commerce platform with an emphasis on SMEs' empowerment. Strong brand awareness, a sizable merchant base, and a diverse ecosystem (payments, logistics, AI-driven tools) are among Shopify's advantages. Reliance on small businesses, pressure from Amazon and other platforms to compete, and difficulties with profitability are some of the main risks.
* **Constellation Software Inc**: A highly acquisitive business that specializes in software for vertical markets. It gains from steady profitability and an industry-diversified portfolio. Its limited organic innovation and strong reliance on acquisitions for growth are its weaknesses, but its tried-and-true M&A strategy still gives it a competitive edge.

**CGI's** long-term government contracts and end-to-end IT services set it apart from its Canadian competitors. Conversely, Shopify concentrates on SME e-commerce solutions, Constellation aggressively pursues acquisitions in niche markets, and OpenText dominates enterprise cloud/software. Every rival outlines a distinct growth strategy that runs counter to CGI's business model, which is heavily reliant on government.

# **DESCRIPTION OF THE PROBLEM TO BE SOLVED**



## **INTRODUCTION**

CGI is one of the largest IT and business consulting services firms in the world. Combining human ingenuity with the power of technology, we help clients accelerate ROI-led digital transformation. The central issue identifies from our analysis that CGI’s heavy reliance on acquiring Government project. Which is the primary source of revenue generating for the company. According to the current strategy company is ensured with a predictable income. It provides a long-term risk by lack of diversity, increasing vulnerability to political cycle and reducing the opportunity to capture the private sector (CGI Inc., 2025a; CGI Inc., 2025b).

## **PROBLEM STATEMENT**

CGI Inc. generates a significant share of its revenue from the public sector, particularly in Canada and the United States, where federal, provincial/state, and municipal governments account for a large portion of its IT outsourcing and large-scale systems projects. According to CGI’s 2024 Annual Report, the government vertically represented approximately 38% of total revenue (CA$14.7 billion in FY2024), making it the single largest industry segment.

Perhaps this dependence on public contracts provides predictable, long-term revenue streams, it creates strategic vulnerabilities:.

* **Political & Policy Risk**: Government IT budgets are directly tied to policy decisions and public funding cycles. A shift in administration or funding priorities could result in delays, cuts, or cancellations of projects, threatening more than a third of CGI’s business.
* **Procurement Challenges**: Public-sector procurement processes are bureaucratic, slow, and highly competitive, often involving multi-year bids with significant upfront investment, which reduces agility compared to CGI’s global competitors.
* **Reputational Risk**: High-profile project failures, such as CGI’s involvement in the U.S. HealthCare.gov rollout (2013) and Ontario’s eHealth medical registry project, demonstrate the heightened public scrutiny and brand damage that can occur when government initiatives underperform.

This heavy reliance on the public sector **limits CGI’s diversification**, **reduces opportunities to explore** **high-growth private-sector opportunities** (e.g., fintech, healthcare technology, retail e-commerce), and leaves the company **more exposed than global competitors** like Accenture, Capgemini, Infosys, and TCS, who maintain more balanced client portfolios across industries. For instance, Shopify the Canadian company globally recognized by their own brand value and the ecommerce exploration.

(Seeking Alpha, 2025; CGI Inc., 2024a; CGI Inc., 2022; Canadian Healthcare Technology, 2015; Shopifyc, 2025)

Apart from the government reliance CGI is trying to stabilize their market performance through its Share Purchase Program (SPP). Employees of CGI purchase the specific amount of share every month where company also provides the same amount for the employee. This strategy for short term is useful to stabilize the market share and provide impression on the investor.

Another business strategy CGI follows is to acquire small to medium scale companies to maintain their share balance in the market.

Perhaps in the long run CGI will need to change their business strategy to compete with the global giant companies.

Though CGI is stepping into the private sector with various domains like banking, insurance, utilities, telecom, those are less recognizable compared to global competitors like Accenture, Capgemini, Infosys or TCS.

(Canadian Healthcare Technology, 2015; CGI Inc., 2022; CGI Inc., 2024a; CGI Inc., 2025d; McKinsey Digital, 2023; ; PR Newswire, 2025; Seeking Alpha, 2025;)

## **DESIRED FUTURE STATE**

According to the analysis the envision state of the CGI is to balance between the public and private sector’s project with target of higher revenue, higher market share. CGI need to focus on the industries like finance, insurance, healthcare, telecom, retail and e-commerce, where the digital transformation, AI, could services and cyber security services will be accelerated (CGI Inc.,2024b).

## **GAP ANALYSIS**

|  |  |  |  |
| --- | --- | --- | --- |
| Area of Focus | Current State | Desired Future State | Identified Gap |
| Revenue sources | 38% Government, 22% Financial services, 22% Manufacturing/retail, 12% Communications/utilities, 6% Health | Diversified with higher private-sector weighting | Overexposure to government sector |
| Risk profile | Stable but politically dependent | Balanced with lower political risk | High vulnerability to policy/funding changes |
| Growth opportunities | Limited diversification into fintech and healthcare tech | Expansion into fintech, retail e-commerce, digital healthcare | Underutilized markets |
| Competitive standing | Strong in government, weaker in private | Balanced like other global giant companies. | Competitive disadvantage |
| Growth strategy | SPP + acquisitions for stability | Proactive diversification and acquisitions in private sector | Acquisitions and SPP alone insufficient for hold the market share. |

(Atlantis-Press, 2022; CGI Inc., 2024a; CGI Inc., 2024b; CGI Inc., 2025d; McKinsey Digital, 2023; Seeking Alpha, 2025)

* 1. **PLANS MOVING FORWARD**

Pentagon Nexus Consulting Group has proposed **the CGI Digital Health Companion** **App** to extend CGI’s capability into the consumer health space to address its overreliance on government projects.

The envisioned solution is a B2B2C-focused mobile application that integrates with wearable devices (e.g., Fitbit, Apple Watch, Garmin) and health IoT sensors to track vitals, provide medication reminders, support secure data sharing, and enable telehealth connectivity. The solution will combine CGI’s credibility in healthcare IT with the rising demand for consumer-centric digital health solutions.

* 1. **NEXT STEPS**
* Current strategy and findings to CGI’s executive leadership
* Diversification should be the top priority on the strategy list.
* Develop a proper road map where timelines, resource allocation, timelines and KPIs.
* Launch pilot projects in selected private-sector industries.
* Track diversification metrics annually to measure progress.

(CGI Inc.,2024b; TBR Insight Center,2025).

* 1. **DATA ANALYSIS**



A pie chart with text

AI-generated content may be incorrect.

(CGI Inc.,2025e)

**Key Metrics and Targets for CGI’s Diversification**

|  |  |  |  |
| --- | --- | --- | --- |
| Metric | Current Value | Target Value | % Gap |
| % Revenue from Government | 38% | 25% | 13% |
| % Revenue from Private Sector | 62% combined | 75% | 13% |
| Brand Visibility | Moderate | Strong | NA |
| % of Services in AI/Cloud | 35% | 65% | 30% |
| OPEX per Project | CAD $2.5 M | CAD $2.0M | 20% efficiency gain |
| Share Repurchase (SPP) | 90% employee participation | Maintain or increase while diversifying revenue | NA |
| Acquisitions | Ongoing (small/mid firms) | Expand in private-sector firms | NA |

(CGI Inc.,2024a ; CGI Inc., 2025c ; CGI Inc.,2025e ; PR Newswire, 2025 ; TBR Insight Center,2025)

1. **PROJECT SCOPE**

CGI Inc. stands out in the Canadian IT consulting market as a trusted partner for public sector organizations and enterprise clients. Our analysis reveals that CGI has the foundations of a stable business, recurring contracts, strong financials, and deep sector experience. Yet, as digital transformation accelerates, there is an urgent need to adapt to new client demands, embrace innovative technologies, and pursue additional growth avenues. This assignment explores a compelling opportunity for CGI to enter new commercial markets and optimize core IT operations with advanced automation and AI, setting the stage for faster growth and more agile client service. Through a structured approach, including competitive benchmarking, process mapping, and solution requirements, this project delivers a roadmap for CGI to future-proof itself and outperform key peers in a fast-evolving industry.

To help CGI Inc. enhance its competitiveness, this project will blueprint process improvements and business model adaptation for growth in commercial markets, focusing on automation and ITSM maturity.

## **OBJECTIVES**

* Analyze core operational, IT, and infrastructure baselines (current state).
* Research and recommend improvements leveraging automation and AI in ITSM and business processes.
* Propose an actionable pilot for a new or improved offering aimed at the under-served commercial client segment.

### **IN-SCOPE**

* Market research to determine the attractive opportunities in private sectors (AI, Cloud, fintech, retail digitalization, healthcare, IT).
* Internal capabilities testing (operations, talent, technology, information systems, partnership) to expand to new industries.
* Competitive benchmarking (SWOT, PESTEL, Balanced Scorecard).
* Process mapping ("as-is" and "to-be")
* Stakeholder engagement and requirements elicitation
* Detailed solution requirements and success criteria
* High-level database and automation solution architecture

### **OUT-OF-SCOPE**

* Final solution implementation
* Vendor/product procurement
* Post-project support
* Complete technology change

### **CONSTRAINTS**

* Access to CGI internal IT and client data
* Resistance to change in an organization
* Solution scope/time-to-market

### **ASSUMPTIONS**

* Stakeholder participation is timely and complete.
* CGI’s leadership supports innovation initiatives.
* There is sufficient funding towards research and strategizing.
* CGI leadership works on diversifying the revenue sources.

## **PROJECT CHARTER**

**Project Name:** Capstone

**Project Manager:** Simon Sarkodie

**Project Sponsor:** Blair Moch

### **PURPOSE:**

To position CGI Inc. as a digital-first market leader by introducing advanced automation and ITSM improvements, enabling strategic growth in untapped commercial/enterprise segments.

### **OBJECTIVES**

* Establish operational and ITSM performance baselines
* Design process optimizations with automation/AI
* Engage stakeholders for buy-in and requirements
* Define solution architecture and pilot proposal

### **TEAM STRUCTURE**

|  |  |  |
| --- | --- | --- |
| Name | Role | Key Responsibilities |
| Sarkodie, Simon | Project Manager | Oversees project scope, delivery, ensures timelines and deliverables, team coordination, logo design, document, scope adherence and final report review |
| Jang, Ya-Jwu | Associate Project Manager | Business Analysis Approach, Gantt Chat, Work breakdown structure |
| Dutta, Mohana | Business Analyst | Written Status report, Project statement |
| Patel, Meet Rajendrakumar | Business Analyst | Stakeholder engagement plan |
| Bhalodia, Vasukrishna Ashokkumar | Business Analyst | Project scope and charter |

### **MAIN DELIVERABLES**

* Completed team contract and charter
* Competitive analysis report (SWOT, PESTEL, Balanced Scorecard)
* “As-Is” process flow documentation
* Solution requirements and selection matrix
* Database design documentation
* Final report with recommendations

### **CRITICAL SUCCESS FACTORS**

* Executive and stakeholder engagement
* Documented, actionable recommendations
* MEASURABLE IMPROVEMENT IN AGILITY AND SERVICE DELIVERY

### **CONSTRAINTS & RISKS**

* Slower adoption and competition in private-sector markets
* Access to client/internal data
* Project schedule and scope limitations
* Change management resistance
* Economic and regulatory uncertainty in new geographies

### **MILESTONES & DATES**

|  |  |
| --- | --- |
| Milestones | Date |
| Company Overview, Team Contract, SWOT, PESTEL, Balanced Scorecard | September 09, 2025 |
| Status Report | September 15, 2025 |
| Define the opportunity | September 16, 2025 |
| RFI Document | September 23, 2025 |
| As Is Process Flow | September 30, 2025 |
| Solution Requirement | October 07, 2025 |
| Database Design | October 14, 2025 |
| Database Design | November 12, 2025 |
| Solution Selection | November 18, 2025 |
| Final Project Report | December 2, 2025 |

## **BUSINESS ANALYSIS APPROACH**

### **PLANNING APPROACH**

The business analysis (BA) activities will follow an Agile-inspired, iterative approach. Each phase of the project (initiation, define the opportunity, business analysis, requirements, define potential solution, design and solution definition, selection, and final deliverables) will include short review cycles with stakeholders to validate progress and adjust as needed. This ensures flexibility, faster feedback, and alignment with CGI’s evolving needs.

### **FORMALITY & LEVEL OF DETAIL**

Deliverables will use a semi-formal level of detail consistent with PMBOK v6 standards. Models such as process flows, RACI charts, and requirements matrices will be concise, focusing on clarity and stakeholder usability rather than lengthy documentation.

### **PROCESS FOR PLANNING BA ACTIVITIES**

BA activities are organized into five phases, each with major outputs:

|  |  |  |
| --- | --- | --- |
| Phase | Major Activities | Timeline |
| Initiation | Team contract, RACI diagram, SWOT, PESTEL analysis, and balanced scorecard | Sept 02 - 11, 2025 |
| Define the opportunity | Define problem statement, project scope, project charter, WBS, and Gantt chart | Sept 09 - 18, 2025 |
| Requirements | Define current state (As-Is), Elicitation | Sept 16 - Oct 9, 2025 |
| Define potential solution options | Document evaluation criteria | Oct 7 - 16, 2025 |
| Design & Solution Def. | Database design, Visio diagram, and normalization | Nov 4 - 13, 2025 |
| Selection | Solution selection, ROI, risk log, implementation strategy, and testing strategy | Nov 11 - 20, 2025 |
| Final project deliverables | Poster presentation, final presentation, final project report, and lesson learned report | Nov 20 - Dec 10, 2025 |

These phases run in parallel with project milestones and ensure BA work aligns with project deliverables.

### **TIMING OF BA WORK**

BA work will be continuous and iterative, integrated with project tasks. Deliverables (e.g., process flows, requirement matrices, solution evaluation) are scheduled to match milestone dates. Early requirements elicitation supports solution design, while iterative updates ensure relevance until final reporting.

### **WORK BREAKDOWN STRUCTURE**

The project WBS defines the scope of BA activities within the broader project. The detailed Work Breakdown Structure is provided in Appendix A. Key BA components include:

* Business Analysis Approach (2.4)
* WBS (2.4.1)
* Gantt Chart (2.4.2)
* Requirements Definition (5.0: including As-Is process flow, functional/non-functional requirements)
* Solution Options & Evaluation (6.0, 8.0)

This structure ensures each deliverable is traceable and linked to the overall project objectives.

### **GANTT CHART**

The Gantt chart (see Appendix B) visualizes the timeline of BA activities, showing dependencies and sequencing from initiation through final report delivery. It highlights critical milestones such as requirements completion (Oct 7), solution design (Nov 12), and final reporting (Dec 2).

## **STAKEHOLDER ENGAGEMENT PLAN**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Stakeholder | Category | Interest | Influence | Expectation | Communication Approach |
| CGI Executive Leadership (Sponsor) | External (Client) | High – Strategic success, ROI, diversification roadmap | High | A clear and actionable diversification strategy, alignment with CGI’s long-term growth goals, timely delivery of consulting recommendations | Monthly executive briefings, formal strategy reports, quarterly board-level presentations |
| Project Manager | Internal (Consulting) | High – Engagement delivery, scope clarity, client satisfaction | High | Ensure project milestones are met, maintain client alignment, manage BA resources effectively | Daily internal stand-ups, weekly progress reports to CGI sponsor |
| Business Analysts | Internal (Consulting) | High – Requirements gathering, analysis, solution design | Medium | Capture CGI’s current state, design gap analysis, recommend viable solutions | Workshops with CGI stakeholders, requirements walkthroughs, solution validation sessions |
| CGI Finance Department | External (Client) | Medium – Budget oversight, ROI validation | High | Transparent cost-benefit analysis, accurate financial projections of diversification | Financial dashboards, monthly financial updates, ROI presentations |
| CGI Legal & Compliance | External (Client) | Medium – Compliance, procurement law, IT security | Medium | Assurance that diversification and acquisitions comply with policies and industry standards | Compliance reports, legal reviews, periodic policy updates |
| End Users (Private sector & Government Clients of CGI) | External (Client’s Clients) | High – Service quality, reliability, modernization | Medium | Expect CGI to deliver efficient, innovative IT solutions that meet sector needs | CGI-led surveys, periodic satisfaction reports, joint feedback sessions |
| Business SMEs (Fintech, Healthcare, Retail experts) | External (Advisory) | High – Industry expertise, market alignment | Medium | Provide CGI with specialized market insights to ensure strategy is realistic and competitive | Sector-specific workshops, knowledge-sharing sessions, advisory reports |
| CGI Data & Technology Teams | External (Client) | Medium – Data quality, system integration, scalability | Medium | Receive guidance for building scalable infrastructure and support in AI/cloud initiatives | Technical workshops, integration updates, weekly sync meetings |
| Investors & Shareholders (via SPP and buybacks) | External (Client) | High – Financial performance, shareholder value | High | Continued SPP participation, strong ROI, sustainable market confidence | Investor briefings (CGI-led), annual reports with consulting insights embedded |
| Acquired Company Leaders (SMEs acquired by CGI) | External (Client’s Acquisitions) | Medium – Smooth integration, cultural alignment | Medium | Clear integration strategy, retention of value from acquisition, communication of roles | Integration playbooks, onboarding sessions, monthly alignment updates |

# **REQUEST FOR INFORMATION (RFI) & BUSINESS REQUIREMENTS**

## **PURPOSE OF RFI**

To gather detailed information from solution stakeholders, including IT leaders, SMEs or project sponsors, technical leads, and business partners to guide the development of solution requirements for the CGI Digital Health Companion, a secure AI-powered mobile application that integrates with consumer wearables and digital health tools.

### **INFORMATION REQUESTED**

|  |  |  |  |
| --- | --- | --- | --- |
| RFI # | Status | Description | Notes |
| 1 | Open | Which platforms (iOS, Android, cross-platform) should be prioritized for release? |  |
| 2 | Open | Beyond Fitbit, Garmin, and Apple Watch, which device brands or IoT sensors must we support? |  |
| 3 | Open | Are specific data residency controls required for health data in particular jurisdictions? |  |
| 4 | Open | Should app connect with national/provincial health infrastructure (Canada Health Infoway, NHS Digital)? |  |
| 5 | Open | What level of explainability is expected from the AI chatbot (admin enquiries, support)? |  |
| 6 | Open | Which telehealth/video-conferencing tools must the app support (Zoom, Teams, proprietary)? |  |
| 7 | Open | Does app need direct provider billing (insurance/government claims)? |  |
| 8 | Open | What level of caregiver access is required (read-only, med management)? |  |
| 9 | Open | Should this be a SaaS subscription for patients, providers, or both? |  |
| 10 | Open | Who will provide user support: CGI internal or integrate third-party virtual/call center agents? |  |
| 11 | Open | Preferred/exclusive provider, pharmacy, or telehealth partners for secure messaging/care coordination? |  |

(World Template Online, 2025, Para. 11)

**Confidentiality**

All information provided in response to this RFI will be treated as confidential and will be used solely for the purpose of developing solution requirements for the CGI Digital Health Companion project.

## **BUSINESS REQUIREMENTS - CGI DIGITAL HEALTH COMPANION**

### **BUSINESS OBJECTIVES (BO)**

|  |  |
| --- | --- |
| ID | Statement |
| BO-01 | Enable CGI to enter the consumer digital health market. |
| BO-02 | Allow users to manage and monitor their health information in one unified platform |
| BO-03 | Provide secure communication and data-sharing between patients, caregivers, and healthcare providers |
| BO-04 | Support integration with common wearable and health data systems |
| BO-05 | Enable CGI to offer a scalable subscription-based digital product |
| BO-06 | Enhance CGI’s brand positioning in digital health |

### **SUCCESS METRICS (SM)**

|  |  |
| --- | --- |
| ID | Statement |
| SM-01 | Achieve a minimum of 100,000 active users within two years of launch. |
| SM-02 | Maintain a 10% month-over-month growth in active users during the first year |
| SM-03 | Reduce provider-facing administrative tasks (scheduling, messaging, reminders) by at least 30% within 12 months. |
| SM-04 | Generate 20% new recurring revenue from the B2B2C digital health channel within two years. |
| SM-05 | Achieve 80%+ satisfaction from healthcare partners (providers, clinics, pharmacies). |
| SM-06 | Improve patient medication adherence by 15–20% within 18 months. |

### **BUSINESS RISKS (BR)**

|  |  |
| --- | --- |
| ID | Statement |
| BR-01 | If the app cannot integrate seamlessly with major wearable devices or health-data systems, adoption by patients and providers may be significantly reduced. |
| BR-02 | If CGI’s B2B2C model fails to attract healthcare partners or end-users, the expected diversification and revenue goals may not be achieved. |
| BR-03 | Changes in healthcare privacy regulations (HIPAA, PHIPA, GDPR) may restrict data usage or delay market entry. |
| BR-04 | If competitors launch more advanced or consumer-friendly digital health solutions, CGI may lose early market advantage. |
| BR-05 | Failure to deliver a reliable, secure, or user-friendly product may negatively impact CGI’s reputation in the digital health sector. |

### **ASSUMPTIONS (AS)**

|  |  |
| --- | --- |
| ID | Statement |
| AS-01 | Healthcare providers are willing to integrate the Digital Health Companion into their workflows if interoperability standards and security requirements are met. |
| AS-02 | Target users already own or have access to wearable devices compatible with the solution. |
| AS-03 | CGI maintains existing relationships with healthcare partners (clinics, pharmacies, EHR vendors) to facilitate onboarding and adoption. |
| AS-04 | The app will meet necessary regulatory requirements and will be approved for listing on Apple App Store and Google Play Store. |
| AS-05 | CGI’s cloud and security infrastructure can support the load, scaling, and compliance requirements of a consumer app. |

### **DEPENDENCIES (DE)**

|  |  |
| --- | --- |
| ID | Statement |
| DE-01 | The rollout depends on CGI’s cloud hosting partners meeting all healthcare security and data-residency requirements (HIPAA, GDPR, PHIPA). |
| DE-02 | Successful adoption depends on healthcare organizations agreeing to join the platform and integrate their workflows. |
| DE-03 | Ongoing access to APIs from major wearable manufacturers (Apple, Fitbit, Garmin, Samsung) is required for real-time data integration. |
| DE-04 | Deployment timelines depend on approvals from regulatory bodies and compliance checks in each operating region. |
| DE-05 | Beta testing requires timely access to pilot users (patients and providers) to validate functionality and user experience. |

**Note:** Success Metrics, Risks, Assumptions, and Dependencies are tightly mapped to the objectives (e.g., user adoption, privacy, market revenue) and each carries measurable targets or explicit relationship to project success or viability.

# **AS-IS PROCESS FLOWS: OVERVIEW**

With the proposed launch of the Digital Health Companion, CGI will enter the B2C healthcare technology market, requiring an evaluation of its current business processes to identify gaps and opportunities. CGI’s internal business areas significantly impacted by the Digital Health Companion include:

* Healthcare IT Service Delivery
* ⁠Client onboarding and implementation
* Revenue And Business Model
* Product Analytics & Continuous Improvement
* Technical Support & Customer Service

Each of these areas currently operates primarily for custom B2B project delivery, lacks high automation, and is not yet adapted for consumer or channel-scale (B2B2C) operations.

## **AS-IS PROCESS SWIMLANE DIAGRAM**

These are the core CGI business areas that will need to adapt or transform as a result of launching and scaling this new digital health product:

### **HEALTHCARE IT SERVICE DELIVERY**

**Flow Explanation**

The swimlane flow outlines CGI’s current operational process for Healthcare IT Service Delivery, emphasizing custom, project-based engagements with healthcare clients. The workflow begins with a client organization (hospital, insurer, or government agency) identifying a technology need and issuing Request for Proposal (RFP). CGI responds, wins contracts, and builds customized IT systems (such as electronic health records, scheduling systems, or claims platforms).

Once deployed, the client operates the system internally, while CGI provides ongoing support and maintenance. Patients only interact with the solution indirectly through hospitals or insurer portals, without realizing CGI is the technology provider.

**Why It Is Being Delivered**

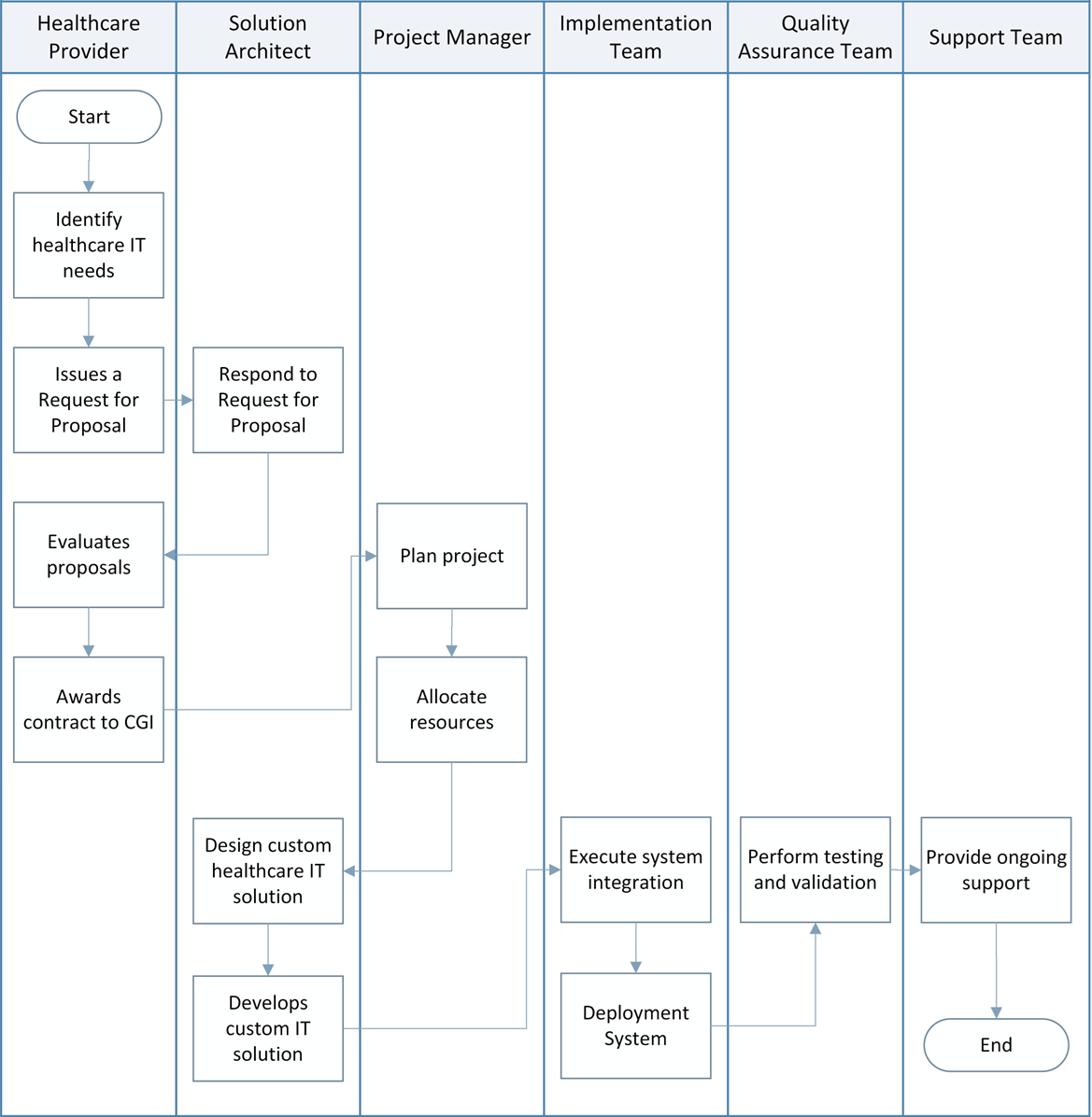
This As-Is flow is being delivered to establish a baseline understanding of CGI’s current healthcare IT service model. It highlights key factors:

* **Indirect Engagement with Patients** – CGI operates behind the scenes and has no direct consumer-facing products.
* **Reliance on Enterprise Contracts** – Revenue comes from long-term contracts with hospitals/governments, creating dependency on procurement cycles (Morningstar, 2023, para. 2).
* **Customization Over Reusability** – Solutions are typically custom-built per client, with limited scalability across the healthcare market.
* **Missed SaaS Opportunities** – CGI has not yet fully tapped into recurring subscription models or consumer-driven healthcare innovations.

By documenting this flow, Pentagon Nexus Consulting Group provides CGI leadership with a clear picture of current business operations, helping them understand why the Digital Health Companion (B2B2C model) can strategically extend CGI into the consumer healthcare market.

**"As-Is" Process Swimlane Diagram for CGI Digital Health Companion (B2B2C)**

**Impacted Business Process: Healthcare IT Service Delivery**



### **CLIENT ONBOARDING AND IMPLEMENTATION**

**Explanation of Flow**

This diagram shows the current (AS-IS) client onboarding and implementation process for CGI in the healthcare sector. Right now, CGI’s healthcare work is heavily dependent on government clients. The process is long, complex, and involves many hand-offs across different teams.

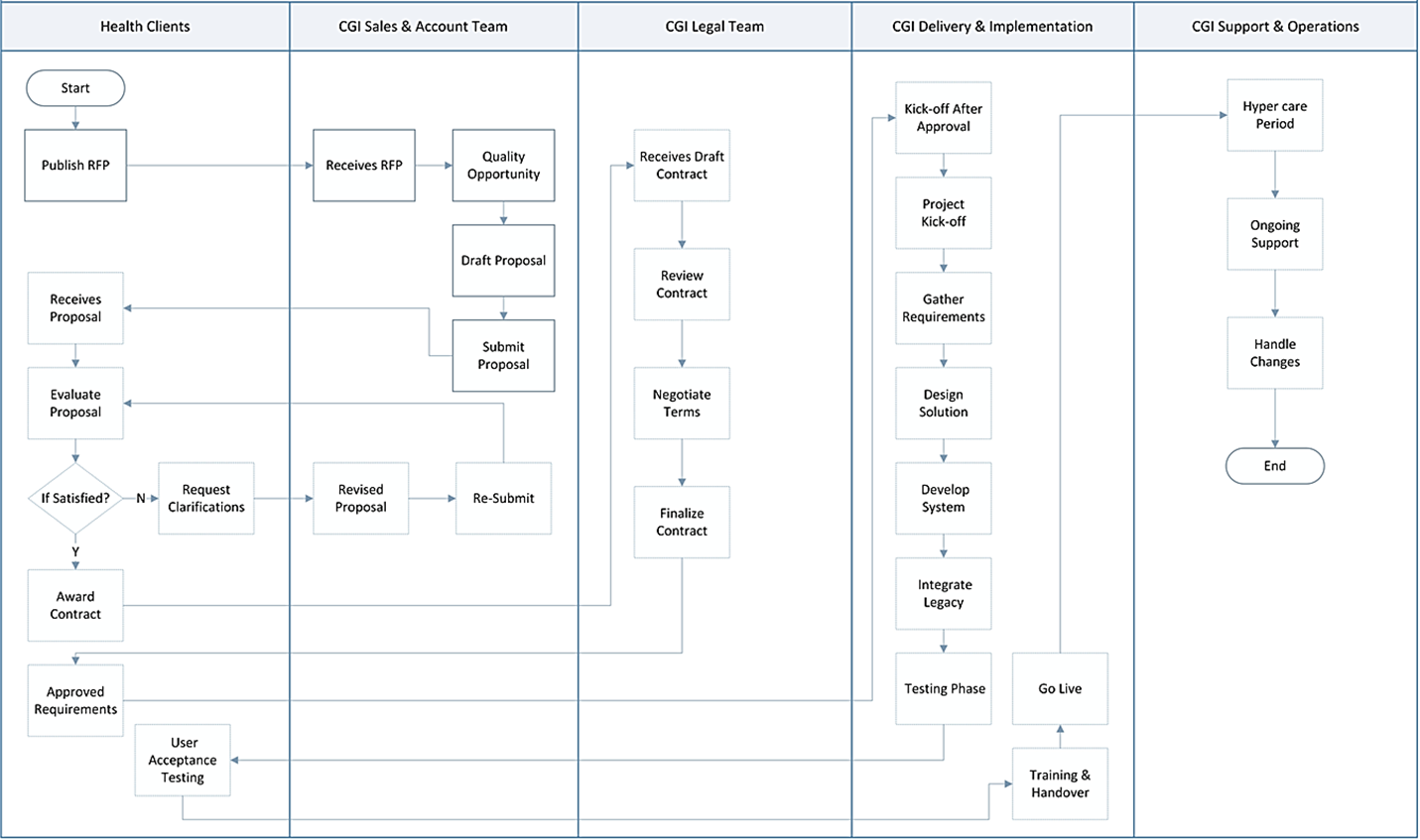
* Clients (Government agencies) start the journey by publishing a Request for Proposal (RFP).
* CGI Sales & Account Teams respond with proposals, revise them after client clarifications, and keep looping until the client is satisfied.
* Once a client is ready to proceed, the work moves to CGI Legal & Compliance, who negotiate terms, review contracts, and finalize agreements.
* After that, CGI Delivery & Implementation takes over. They run project-kickoff sessions, gather detailed requirements, design and build the system, integrate with legacy government platforms, and perform extensive testing.
* Once the system is tested, it is handed over to the client for User Acceptance Testing (UAT).
* The final system is trained, handed over, and taken live.
* At this point, CGI Support & Operations steps in to provide hyper care, long-term support, and manage change requests as they arise.

The flow ends when the client receives ongoing support from CGI.

(CGI Inc, 2024f; CGI ,2025l; CGI Inc., 2025m; Planview, 2025)

**"As-Is" Process Swimlane Diagram for CGI Digital Health Companion (B2B2C)**

**Impacted Business Process: ⁠Client(Healthcare) onboarding and implementation**



### **REVENUE AND BUSINESS MODEL**

**Explanation of Flow**

The As-Is Process Swimlane Diagram for Revenue & Business Model illustrates how CGI currently generates revenue through its Business-to-Business (B2B) model. The process begins with Sales & Account Managers identifying sales opportunities with enterprise clients (hospitals, insurers, or government agencies). They prepare and negotiate contract terms until agreements are finalized.

Once contracts are in place, the Finance Team generates invoices, while Client Accounts receive and process payments. The Finance Team further reconciles accounts and manages collections, ensuring that cash flow remains consistent. Sales & Account Managers continue to manage renewals and upsell opportunities to extend the value of client relationships. Meanwhile, Finance & Leadership forecast and report revenue, using these insights for strategic decision-making. Lastly, Legal & Compliance review contracts to ensure that agreements meet regulatory and contractual obligations, reducing risk exposure for CGI.

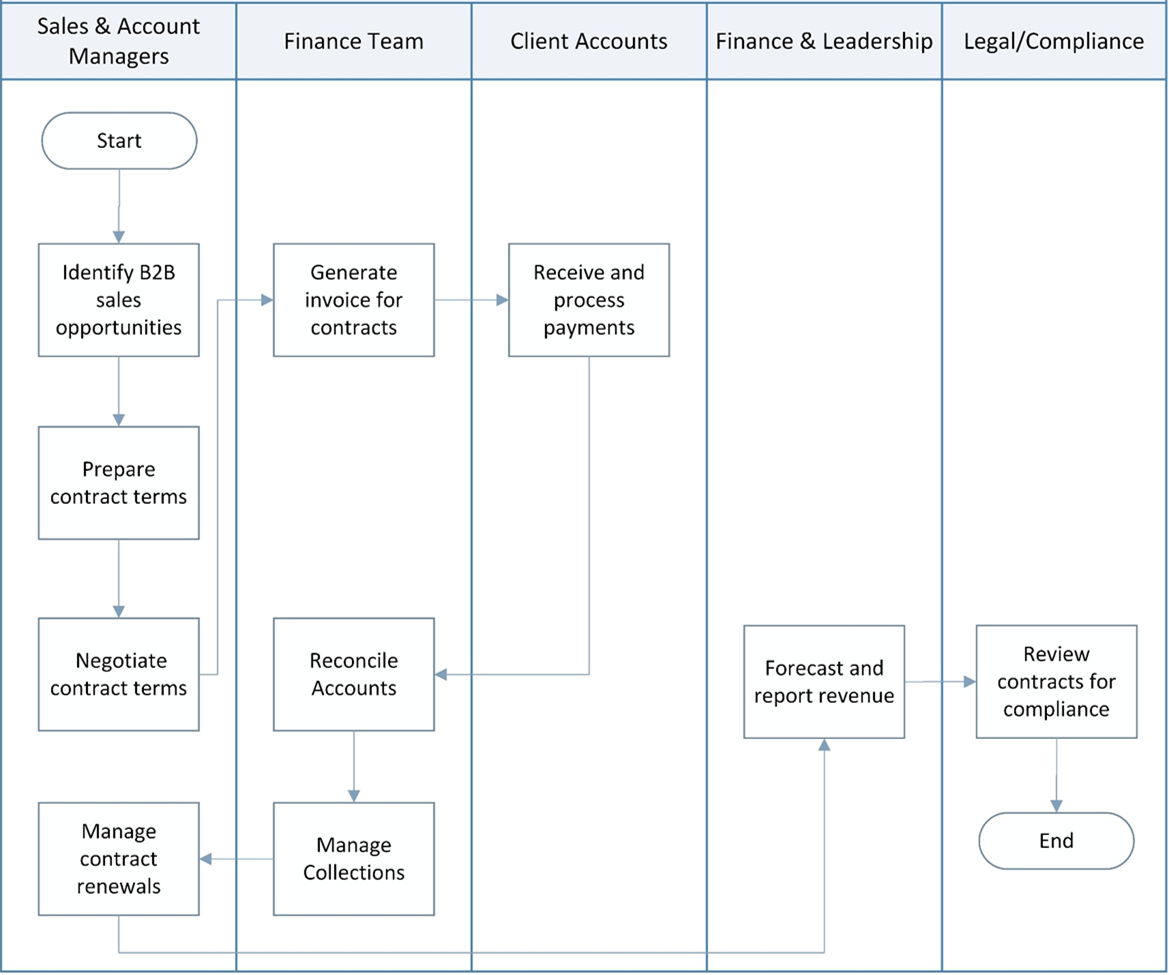
**Why This Flow Is Being Delivered**

* **Dependency on Enterprise Contracts** – This model makes CGI heavily reliant on government and enterprise projects, leaving revenue vulnerable to procurement cycles (Morningstar, 2023, para. 2).
* **Lack of Consumer Revenue** – Patients have no direct financial relationship with CGI; all revenue flows through institutions.
* **Project-Oriented, Not Product-Oriented** – Revenue is mostly tied to large, one-off contracts instead of scalable SaaS products.
* **Strategic Gap** – By documenting this As-Is process, we show why CGI needs a B2B2C SaaS product (like the Digital Health Companion) to diversify revenue, capture recurring subscriptions, and strengthen consumer presence.

With the adoption of a B2B2C commercialization model for the Digital Health Companion, these revenue processes will come under significant pressure to evolve. The model requires CGI to manage larger volume, smaller value transactions driven by channel partners and end consumers, moving from project-based to productized recurring revenue systems (HTDHealth, 2025, paras. 2-8).

**"As-Is" Process Swimlane Diagram for CGI Digital Health Companion (B2B2C).**

**Impacted Business Process: Revenue & Business Model**

****

### **PRODUCT ANALYTICS & CONTINUOUS IMPROVEMENT**

**Flow Explanation**

This swimlane flow illustrates CGI’s current process for product analytics and continuous improvement within its B2B digital health offerings. The workflow begins with project teams tracking project-level data and compiling closeout metrics after delivery. These are then passed to operations leads, who review, aggregate, and approve performance KPIs. Once validated, the information is forwarded to business intelligence analysts, who manually import, clean, and standardize the data before producing static reports.

From there, account managers schedule and conduct Quarterly Business Reviews (QBRs) with B2B clients, presenting the BI reports and capturing qualitative feedback. Finally, leadership teams review lessons learned, document key takeaways, and plan improvements for future projects. This cycle is primarily project-based, relies heavily on manual data handling, and operates on a quarterly rhythm rather than real-time insights.

**Why It Is Being Delivered**

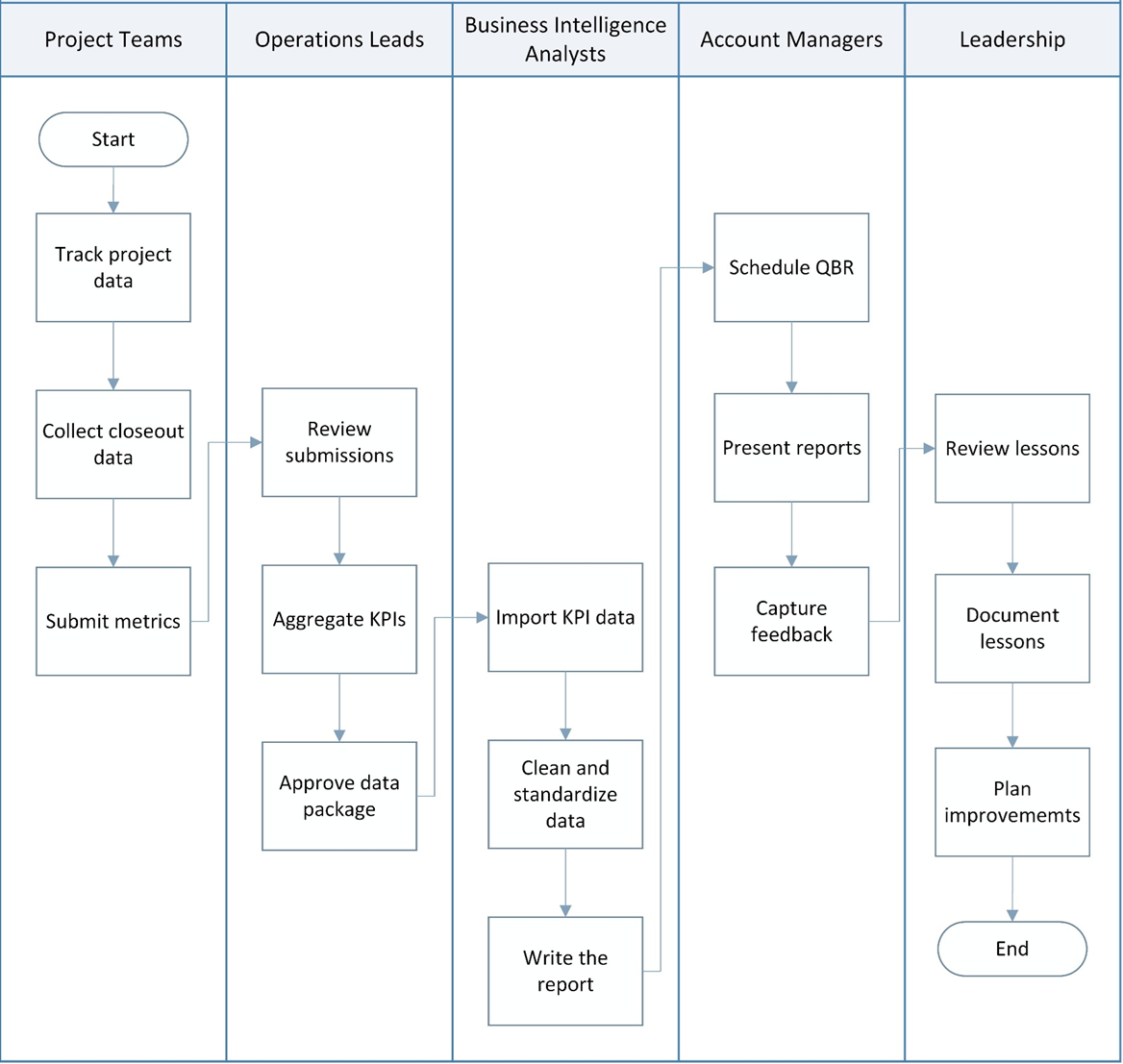
This As-Is flow is being delivered to provide a baseline understanding of CGI’s current approach to analytics and improvement in its healthcare IT services. It highlights several key realities:

* **Lagging Indicators** – Metrics are compiled at project closeout or quarterly, which limits the ability to make real-time adjustments.
* **Manual Reporting** – BI analysts still rely on manual processes for data import and reporting, increasing cycle times and risk of errors (CGI Inc., 2023a).
* **Client-Centric but Slow** – While client QBRs ensure accountability, the feedback loop into operations is slow, often delaying improvements until the next project cycle (Morningstar, 2023).
* **Limited Consumer Insights** – Current reporting is designed for enterprise stakeholders, not for monitoring product adoption, engagement, or user outcomes at the consumer level.

By documenting this As-Is process, the BA team provides CGI leadership with a clear baseline. This helps them recognize the gap between B2B project-based analytics and the real-time, user-focused analytics required for a B2B2C digital health companion model. Establishing this baseline ensures that future state proposals can directly address inefficiencies and align CGI’s strategy with evolving healthcare technology trends.

**"As-Is" Process Swimlane Diagram for CGI Digital Health Companion (B2B2C)**

**Impacted Business Process: Product Analytics & Continuous Improvement**



### **TECHNICAL SUPPORT & CUSTOMER SERVICE**

**Flow Explanation**

The As-Is Process Swimlane Diagram for Technical Support & Customer Service represents how CGI currently handles client-reported technical issues in its IT service delivery model.

The process begins when a client identifies a system issue and submits a support ticket. The ticket is logged and categorized by the Support Desk (Tier 1), which attempts an initial resolution. If the issue is simple, Tier 1 provides an immediate fix and updates the client. However, if the issue is more complex, it is escalated to Technical Specialists (Tier 2/3) for in-depth investigation and troubleshooting.

Technical Specialists apply the resolution and escalate further if needed. The Account/Service Manager plays a communication role, ensuring that the client receives updates and confirms closure. After the issue is resolved, the Reporting & Compliance team documents the resolution in the knowledge base and generates compliance and trend reports to track Service Level Agreement (SLA) performance.

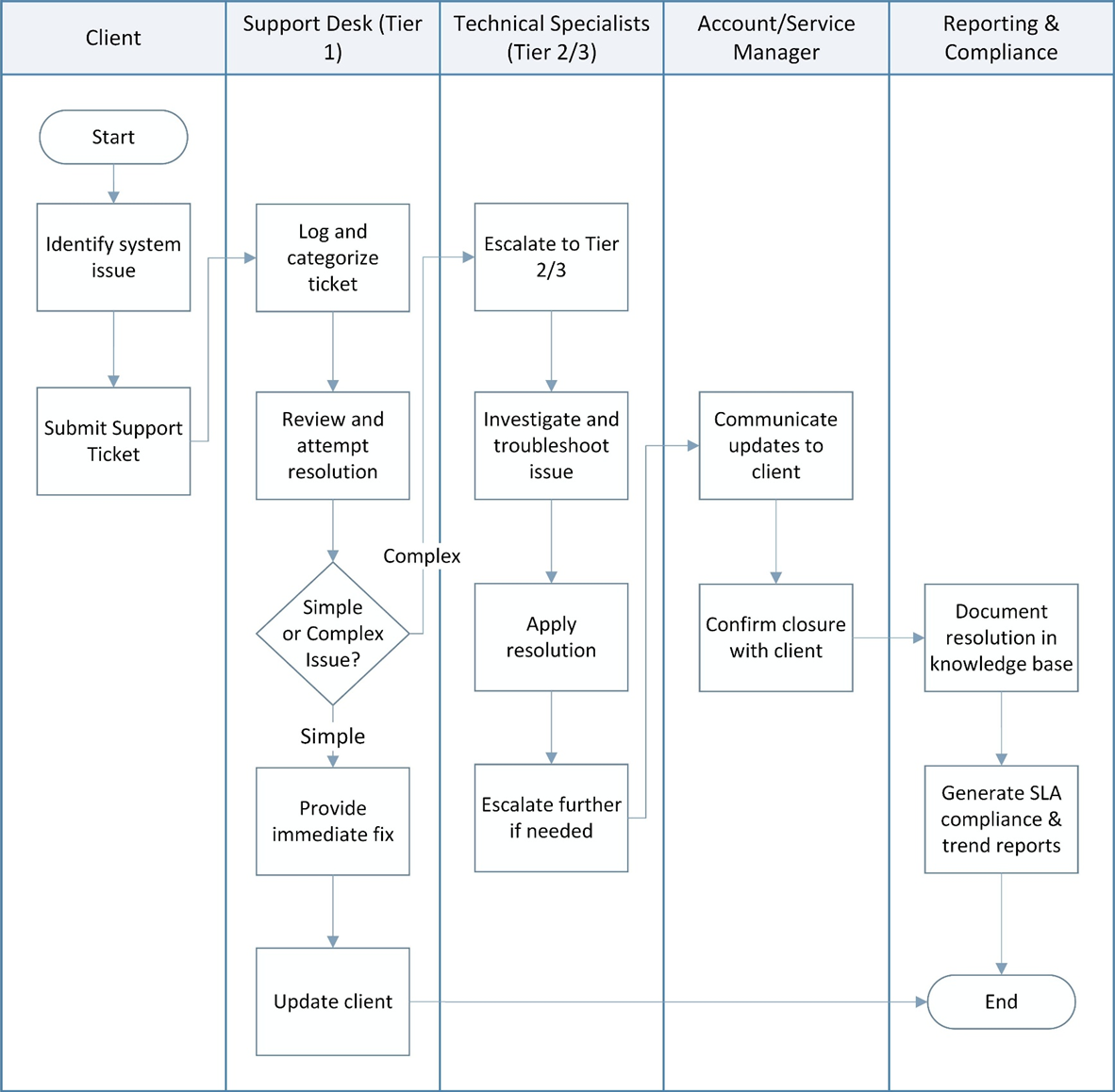
**Why It Is Being Delivered**

This flow is being documented to:

1. **Capture the Current State of Customer Support**
   * The diagram highlights CGI’s tiered technical support model, showing how issues are categorized and escalated.
   * It reflects CGI’s reliance on human-driven escalation chains rather than automation or AI-assisted support.
2. **Identify Bottlenecks and Gaps**
   * The process is often reactive, depending on manual intervention by Tier 1 and Tier 2/3 specialists.
   * Escalation and communication with clients can lead to delays in resolution, reducing customer satisfaction.

**"As-Is" Process Swimlane Diagram for CGI Digital Health Companion (B2B2C)**

**Impacted Business Process: Technical Support & Customer Service**



# **FUNCTIONAL REQUIREMENTS**

The solution requirements outlined in this document have been developed through stakeholder elicitation activities, including a Request for Information (RFI), industry research, and alignment with CGI’s business objectives. Requirements have been grouped into functional requirements (what the system must do) and non-functional requirements (how the system must perform). Each requirement has been articulated following best practices: including a clear description, measurable and testable criteria, prioritization, stakeholder alignment, IT response, and traceability to business needs. These requirements establish a shared foundation for solution design, development, and validation, ensuring that both business needs and technical standards are clearly aligned.

## **CONTINUOUS HEALTH MONITORING**

The purpose of the feature is to track real-time vitals, exercise, sleep, and chronic condition parameters.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Req ID | Requirement Description | Priority | Measurable Criteria | Testable | IT Response | Stakeholder | Traceability |
| FR-1.1 | The app shall continuously track vitals such as heart rate, temperature, and sleep. | High | Data syncs every 5 minutes | Integration and timing tests with wearables /sensors | Integrate wearable Software Development Kit | Health IT Analyst | RFI#2 (device support) |
| FR-1.2 | The app shall display health trends over daily, weekly, and monthly periods. | Medium | Graphs and summaries generated automatically | Data visualization and export tests | Dashboard data visualization | UI/UX Designer | RFI #9 SaaS Dashboard Features |
| FR-1.3 | The app shall alert users and caregivers of abnormal readings. | High | Notification sent within 30 seconds of anomaly | Anomaly simulation with notification timing audit | AI-driven anomaly detection | Product Manager | RFI #5 |

## **INTEGRATION COMPONENTS**

The purpose of this feature is to connects with major wearable device brands and home health sensors.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Req ID | Requirement Description | Priority | Measurable Criteria | Testable | IT Response | Stakeholder | Traceability |
| FR-2.1 | The app shall be deployable on iOS, Android, and via cross-platform frameworks. | High | Successful installation and operation on supported platforms. | Verify through installation tests on iOS, Android, and cross-platform devices. | Develop and maintain cross-platform compatible codebase. | Project Sponsor, IT Lead | RFI #1 (platforms) |
| FR-2.2 | The app shall allow users to add or remove devices from their profile. | Medium | Devices added or removed correctly reflected in user profile and device list. | Validate by pairing/unpairing devices in test environment. | Profile management to include device linking/unlinking module. | End Users (Patients) | Functional Design (User Profile Mgmt.) |
| FR-2.3 | The app shall integrate with Fitbit, Garmin, Apple Watch, and Smart Rings (Oura, Samsung, Ultrahuman, RingConn, Movano Evie). | High | Successful pairing and data sync with all supported devices. | Conduct integration and data flow testing for each device type. | APIs/ Software Development Kits (SDKs) from device manufacturers must be licensed and integrated. | End Users (Patients), Providers | RFI #2 (device support) |
| FR-2.4 | The app shall automatically detect device type upon pairing. | Medium | Device identification completed with 99% accuracy during pairing events | Test by pairing multiple device brands and verifying recognition. | Device recognition logic built using SDK metadata and Bluetooth identifiers. | End Users (Patients) | RFI #2 (device support) |

## **MEDICATION AND CARE PLAN REMINDERS**

The purpose of the feature is to customize scheduling, refills, and smart escalation to caregivers/providers.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Req ID | Requirement Description | Priority | Measurable Criteria | Testable | IT Response | Stakeholder | Traceability |
| FR-3.1 | The app shall allow users to schedule medication reminders with customizable frequency (daily, weekly, or as prescribed). | High | Users can create and modify at least 3 types of reminder frequencies. | Verify reminder notifications trigger as per defined frequency. | Develop dynamic scheduling module linked to user calendar and system clock. | End Users (Patients) | RFI #3 |
| FR-3.2 | The app shall notify users when a prescription refill is due based on medication duration or dosage count. | High | |  | | --- | |  |  |  | | --- | | Refill reminders triggered at least 3 days before depletion for 95% of test cases. | | Simulate refill cycle and confirm timely notification delivery. | Implement medication tracking with refill threshold logic. | End Users (Patients), Providers | RFI #3 |
| FR-3.3 | The app shall allow users to pause or snooze reminders with a rescheduled time option. | Medium | |  | | --- | |  |  |  | | --- | | Users can successfully snooze reminders by 15–60 minutes. | | Test snooze and reschedule actions for various reminder types. | Build user control module to modify active notification timers. | End Users (Patients) | RFI #3 |
| FR-3.4 | The app shall enable users to confirm medication intake by tapping or scanning within the app. | Medium | 90% of users can record confirmation successfully within 5 seconds. | Validate that confirmation logs update medication adherence data. | Integrate input capture and timestamp logging with user history. | End Users (Patients), Providers | RFI #3 |

## **PROVIDER AND CUSTOMER CONNECTIVITY**

The purpose of the feature is to goal that one-tap messaging with chosen providers, an optional caregiver portal for remote support.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Req ID | Requirement Description | Priority | Measurable Criteria | Testable | IT Response | Stakeholder | Traceability |
| FR-4.1 | The app shall allow users to send secure one-tap messages to assigned healthcare providers within the app. | High | |  | | --- | |  |  |  | | --- | | Message delivery time ≤ 3 seconds in 95% of cases. | | Send test messages and verify instant delivery confirmation. | Develop in-app messaging API with encrypted data transfer. | End Users (Patients), Providers | RFI #4 |
| FR-4.2 | The app shall support file attachments (e.g., reports, prescriptions, images) in messages up to 10 MB per file. | High | 100% of supported file types (PDF, JPG, PNG) upload successfully. | Upload and send test attachments to confirm proper transmission. | Enable file compression, validation, and encrypted upload. | End Users (Patients), Providers | RFI #4 |
| FR-4.3 | |  | | --- | | The app shall display real-time provider availability and allow patients to initiate chat during working hours. | | Medium | Availability status accuracy ≥ 95% across tested time intervals. | Compare provider availability with system schedule logs. | Integrate provider scheduling API and live status updates. | End Users (Patients), Providers | RFI #4 |
| FR-4.4 | The app shall support multi-language messaging for English and French interfaces. | Low | 100% of test messages correctly displayed in both languages. | Validate bilingual message rendering and translation toggle. | Add localization framework to messaging and portal modules. | End Users (Patients), Providers | RFI #4 |

## **PERSONALIZED AI HEALTH INSIGHTS**

This feature aims to offer personalized AI-driven health insights by studying the individual trends and offering explicit, evidence-based advice to enhance patient outcomes.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Req ID | Requirement Description | Priority | Measurable Criteria | Testable | IT Response | Stakeholder | Traceability |
| FR-5.1 | The app shall collect and update user health data such as heart rate, steps, sleep, and medication use. | High | 95% of data from connected devices should appear correctly in the app within 5 seconds. | By checking data transfer from device to app. | Build a secure data collection system. | Patients, Healthcare Providers | RFI #5 |
| FR-5.2 | The app shall show each user a simple health score based on their daily activities and sleep. | High | The health score should refresh automatically every 24 hours with at least 90% data accuracy. | By testing daily score updates. | Create a scoring feature in the app. | Patients | RFI #5 |
| FR-5.3 | |  | | --- | |  |   The app shall send alerts when a user’s health readings go outside normal range. | High | 95% of alerts should appear within 10 seconds after the issue is detected. | By testing alert timing. | Add automatic alert system. | Patients, Doctors | RFI #5 |
| FR-5.4 | The app shall give easy-to-understand advice after showing an alert. | Medium | 100% of alerts must include at least one short tip or advice message under 50 words. | By checking messages after alerts. | Add advice messages in alert screen. | Patients | RFI #5 |

## **UNIVERSAL DATA INTEROPERABILITY**

This feature is intended to allow the seamless and standardized exchange of health data across devices and providers so that health data can be accessed securely and controlled by the user and provide better coordination of care.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Req ID | Requirement Description | Priority | Measurable Criteria | Testable | IT Response | Stakeholder | Traceability |
| FR-6.1 | The app shall allow health data to be shared between the app and hospital systems. | High | Data transfer success rate should be at least 98% during connection tests. | Connection, data sharing, and error monitoring tests | Create data-sharing connection with hospital systems. | Hospitals, IT Team | RFI #6 |
| FR-6.2 | The app shall connect with popular wearable devices like Fitbit or Apple Watch. | High | Data from at least 3 device brands should sync correctly 95% of the time. | Device sync and data validation tests | Add connection options for wearables. | Patients, | RFI #6 |
| FR-6.3 | The app shall allow users to choose who can see their health data. | High | Users should be able to enable or disable sharing in 100% of test cases | Share/unshare test with various recipients/roles | Add privacy control in settings. | Patients | RFI #6 |
| FR-6.4 | The app shall keep data sharing safe and private when connected to other systems. | Medium | 100% of shared data uses encryption; no unauthorized access detected. | Encryption, penetration, and security audit tests | Add security and encryption settings. | IT Admin, Healthcare Partners | RFI #6 |

## **PRIVACY AND SECURITY**

The purpose of this feature is to ensure end-to-end encryption, advanced consent management, regulatory compliance, & biometric login.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Req ID | Requirement Description | Priority | Measurable Criteria | Testable | IT Response | Stakeholder | Traceability |
| FR-7.1 | The app shall provide biometric login (fingerprint, facial recognition). | Medium | Login success rate ≥ 98% | Biometric login success and failure rates testing. | Mobile biometrics integration | IT Developer | User Access Policy |
| FR-7.2 | The app shall comply with HIPAA security standards. | High | Compliance testing passed | Conduct external compliance assessments | Build system according to privacy rules | Legal & Compliance | RFI #3 |
| FR-7.3 | The app shall require multi-factor authentication (MFA) for provider and admin accounts. | High | MFA success and failure rates logged | MFA enforcement tested during access control validation | Integrate MFA (OTP, hardware token) for privileged accounts | IT Security Team | Security Policy |

## **BILLING & PAYMENT SYSTEM**

The purpose of this feature is to enable secure and automated billing, subscription, & payment processing for patients and providers.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Req ID | Requirement Description | Priority | Measurable Criteria | Testable | IT Response | Stakeholder | Traceability |
| FR-8.1 | The app shall allow direct provider billing to hospitals, pharmacies, and insurers. | High | Successful transaction tests. | End-to-end billing transaction testing. | Integrate payment gateways | Patient , Finance Team | RFI #7 |
| FR-8.2 | The app shall support monthly or yearly subscription renewals automatically. | High | All subscriptions renewal should work without any error. | Recurring billing cycle testing. | SaaS billing integration | Business Analyst | RFI #9 |
| FR-8.3 | The app shall support monthly or yearly subscription renewals automatically. | Medium | 98% invoice delivery success | Invoice creation and delivery logs test. | Automated invoice & receipt generation | Finance Team | Accounting Policy |

# **NON-FUNCTIONAL REQUIREMENTS**

## **PERFORMANCE**

Purpose: To ensure fast and responsive user experience.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Req ID | Requirement Description | Priority | Measurable Criteria | Testable | IT Response | Stakeholder | Traceability |
| NFR-1.1 | App screens must be loaded within 3 seconds on a stable mobile network. | High | Screen loads ≤ 3 s on 4G/Wi-Fi | Load-time testing | Optimize app caching & API calls | Dev Team leader | System Design Doc |
| NFR-1.2 | API response time should remain below **2 seconds** under average usage. | High | API response ≤ 2 s average | API performance test | Enable API gateway monitoring | Backend Engineer | API Specification V1 |
| NFR-1.3 | The system must support at least **10,000 concurrent users** without noticeable slowdown. | High | 10 000 concurrent users supported | Load/stress test | Deploy auto-scaling infra | Cloud Ops Manager | Capacity Plan |
| NFR-1.4 | Wearable data synchronization should be completed with an **average latency under 5 seconds**. | Medium | Avg. sync latency ≤ 5 s | Device sync test | Optimize data stream buffering | Integration Team | Integration Module |

## **AVAILABILITY & RELIABILITY**

Purpose: To maintain continuous and dependable system operation.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Req ID | Requirement Description | Priority | Measurable Criteria | Testable | IT Response | Stakeholder | Traceability |
| NFR-2.1 | The system must achieve 99.9 % uptime per month. | High | Uptime ≥ 99.9 % / month | Monitor logs & SLAs | Multi-region failover setup | Cloud Ops | SLA Report |
| NFR-2.2 | Any service failure must recover automatically within **5 minutes**. | High | Auto-recovery ≤ 5 min | Failure simulation | Implement health-checks | DevOps Leader | Recovery Plan |
| NFR-2.3 | Scheduled maintenance downtime must not exceed **2 hours per month**. | Medium | Planned downtime ≤ 2h / month | Operational log check | Use rolling updates | Release Manager | Change Log |
| NFR-2.4 | Critical alerts and reminders must deliver with **100 % reliability** during uptime. | High | 100 % alert delivery during uptime | Alert tests | Use redundant notification queues | Product Owner | Alert System Design |

## **ACCESSIBILITY & USABILITY**

Purpose: To ensure intuitive and inclusive user interaction.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Req ID | Requirement Description | Priority | Measurable Criteria | Testable | IT Response | Stakeholder | Traceability |
| NFR-3.1 | The interface must be **consistent** across all screens. | High | Visual consistency 100 % UI screens | UX log check | Apply design system rules | UI/UX Designer | Style Guide |
| NFR-3.2 | 85 % or more of test users should rate the app as “easy to use.” | High | ≥ 85 % users’ rate “easy to use” | Usability survey | Conduct pilot testing | QA Lead | UAT Plan |
| NFR-3.3 | Common actions should require **no more than 3 taps**. | Medium | ≤ 3 taps for core actions | Task flow test | Simplify navigation paths | Product Owner | UX Wireframes |
| NFR-3.1 | The interface must be **consistent** across all screens. | High | Visual consistency 100 % UI screens | UX log check | Apply design system rules | UI/UX Designer | Style Guide |

## **SCALABILITY**

Purpose: To support growing user demand without performance loss.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Req ID | Requirement Description | Priority | Measurable Criteria | Testable | IT Response | Stakeholder | Traceability |
| NFR-4.1 | The architecture must support seamless growth to **5,00,000 active users** without redesign. | High | Handles 500 k active users | Load simulation | Using microservices architecture | Tech Architect | Infra Plan |
| NFR-4.2 | Response times must not degrade by more than **20 %** under peak load. | High | Resp. time degrades ≤ 20 % at peak | Stress Test | Optimize DB indexing & cache | Backend Lead | Performance Report |
| NFR-4.3 | Cloud infrastructure must auto-scale horizontally to meet usage spikes. | Medium | Auto-scale triggers < 1 min | Cloud Test | Enable horizontal auto-scaling | DevOps | Cloud Policy Doc |
| NFR-4.1 | The architecture must support seamless growth to **5,00,000 active users** without redesign. | High | Handles 500 k active users | Load simulation | Using microservices architecture | Tech Architect | Infra Plan |

## **COMPATIBILITY**

Purpose: To ensure consistent performance across platforms.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Req ID | Requirement Description | Priority | Measurable Criteria | Testable | IT Response | Stakeholder | Traceability |
| NFR-5.1 | The app must perform consistently on **Cross Platform** | High | Runs smoothly on Android 10+ & iOS 14+ | Device testing | Use cross-platform framework | Mobile Dev | App Build Guide |
| NFR-5.2 | Web dashboards must function correctly on the latest versions of **Chrome, Edge, and Safari**. | Medium | Web UI works in latest browsers | Browser test | Apply responsive design | Web Dev | Frontend Spec |
| NFR-5.3 | Application installation package must not exceed **200 MB**. | Low | App size ≤ 200 MB | Install test | Optimize assets & images | Dev Team | Packaging Report |

## **MAINTAINABILITY**

Purpose: To ensure easy updates and quick issue resolution.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Req ID | Requirement Description | Priority | Measurable Criteria | Testable | IT Response | Stakeholder | Traceability |
| NFR-6.1 | System code must follow **modular architecture** with full documentation for each module. | High | 100 % modules documented | Code review | Maintain API docs repo | Tech Leader | Repo Docs |
| NFR-6.2 | New updates or patches must deploy with **zero data loss**. | High | Zero data loss on update | Patches deploy test | Use transactional updates | Release Team | Update Checklist |
| NFR-6.3 | Average time to resolve production defects (MTTR) should be **≤ 4 hours**. | High | MTTR ≤ 4 hours | Incident logs | Automate alert resolution | Ops Lead | Support Log |
| NFR-6.4 | At least **80 % test coverage** must be maintained on critical components. | Medium | ≥ 80 % test coverage | Unit test report | Maintain CI/CD pipelines | QA Engineer | Test Summary |

## **BACKUP & RECOVERY**

Purpose: To protect data and restore services after failure.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Req ID | Requirement Description | Priority | Measurable Criteria | Testable | IT Response | Stakeholder | Traceability |
| NFR-7.1 | Automatic daily backups must be verified successfully. | High | Daily backup success 100 % | Backup logs | Automate cloud snapshots | DevOps | Backup Policy |
| NFR-7.2 | Recovery Time Objective (**RTO**) = ≤ 1 hour; Recovery Point Objective (**RPO**) = ≤ 15 minutes. | High | RTO ≤ 1 h; RPO ≤ 15 min | DR drill | Enable geo-redundant storage | Infra Team | DR Plan |
| NFR-7.3 | Backups must be stored in **encrypted, geographically separate** data centers. | Medium | Encrypted off-site storage | Verify restore | Store in separate region | Security Admin | Compliance Audit |

## **SECURITY QUALITY**

Purpose: To maintain secure system performance and protection.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Req ID | Requirement Description | Priority | Measurable Criteria | Testable | IT Response | Stakeholder | Traceability |
| NFR-8.1 | System performance during authentication must be completed within **2 seconds** on average. | High | Login ≤ 2 s avg | Auth speed test | Optimize the API flow | Security Lead | Security Spec |
| NFR-8.2 | Session timeout must trigger after **10 minutes** of inactivity. | High | Auto-logout after 10 min idle | Functional test | Configure session timeouts | App Dev Lead | Config File |
| NFR-8.3 | Annual third-party penetration testing must report **no critical vulnerabilities**. | High | No critical findings in annual pen-test | Operational log check | Schedule 3rd-party test | Compliance Manager | Audit Doc |
| NFR-8.4 | Security updates must be applied within **48 hours** of public disclosure. | High | Patch within 48 h of CVE | Review change log | Automate update pipeline | DevOps | Security Policy |

## **SYSTEM INTEGRATION QUALITY**

Purpose: To ensure fast, accurate communication with other systems.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Req ID | Requirement Description | Priority | Measurable Criteria | Testable | IT Response | Stakeholder | Traceability |
| NFR-9.1 | Integration components must handle **99 % successful API calls** | High | ≥ 99 % successful API calls | Integration test | Monitor API health metrics | Integration Team | Interface Doc |
| NFR-9.2 | Data conversion errors during exchange must be **≤ 0.5 %** per transaction. | Medium | ≤ 0.5 % data conversion errors | ETL Test | Validate data mapping scripts | Data Engineer | Data Model |
| NFR-9.3 | Data exchange latency between two systems must remain **under 3 seconds**. | Medium | Exchange latency ≤ 3 s | API performance test | Optimize payload sizes | Backend Engineer | API Schema |

## **OFFLINE OPERATION**

Purpose: To ensure usability during network outages.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Req ID | Requirement Description | Priority | Measurable Criteria | Testable | IT Response | Stakeholder | Traceability |
| NFR-10.1 | Users must be able to view last-synced data while offline. | Medium | Offline data accessible 100 % | Offline test | Cache last-synced records | Mobile Dev | Cache Module |
| NFR-10.2 | Offline mode must synchronize automatically within **30 seconds** after reconnection. | Medium | Auto-sync ≤ 30 s post-reconnect | Sync test | Implement background sync service | App Dev Lead | Sync Flow |
| NFR-10.3 | No data loss or duplication may occur after sync. | High | Zero data loss/ duplication after sync | Regression Test | Use conflict resolution logic | QA Lead | Data Integrity Plan |

# **POSSIBLE SOLUTIONS OPTIONS**

Pentagon Nexus Consulting Group accessed the available design alternatives that CGI can adopt in developing the solution and baselines applied in the evaluation of the alternative. The objective is to choose a solution that will assist CGI extend its strategy of B2B (government and enterprise contracts) to B2C and B2B2C digital-health markets without compromising the security, scalability, and the brand reputation. This model allows CGI to sell the solution to hospitals, insurers, and pharmacy chains, who in turn offer it to patients, thereby maximizing reach, adoption, and recurring revenue potential.

## **SUMMARY OF EXISTING FUNCTIONALITY**

The health-care business process current at CGI is largely oriented on enterprise and government business projects including electronic health-record systems and claims systems. These solutions are custom developed to each customer and are not directly available to the patients. The As-Is process flow of Assignment 4 revealed that CGI relies heavily on long contract cycles and manual analytics. The Digital Health Companion proposes a consumer product model that will enable patients to monitor their vitals, schedule appointments, and make payments, in addition to sharing data with their providers safely - bringing CGI to a consumer-based recurring revenue model.

## **REQUIREMENT DETAILS**

The Digital Health Companion is designed to with the following features:

* Seamless real-time health monitoring with wearables and mobile devices.
* Secure communication between providers, patients, and families.
* Personalized AI health insights and flexible care reminders.
* billing and subscription integration for patients and providers
* Robust data interoperability, security, and privacy controls, enabling cross-provider collaboration and compliance.

## **ASSUMPTIONS AND PREREQUISITES**

* CGI intends to commercialize the product using a B2B2C model, targeting healthcare organizations that distribute the solution to end-users.
* CGI holds deep technical and regulatory expertise (HIPAA, GDPR) and longstanding partnerships across the health ecosystem.
* Cloud infrastructure will be deployed regionally to meet data residency regulations.
* The wearable and health IoT market will continue to expand.
* Stakeholders include CGI IT architects, healthcare partners, regulatory officers, and end-users.

## **POSSIBLE SOLUTION #1 – (CGI DIGITAL HEALTH COMPANION)**

* + 1. **HIGH-LEVEL DESIGN**
    2. **SYSTEM OVERVIEW**

A secure, AI-powered mobile and web-based companion that integrates with wearable devices, home sensors, and provider systems to deliver proactive health management.

* + 1. **MAIN COMPONENTS**

|  |  |  |
| --- | --- | --- |
| Layer | Description | Related Core Features |
| User Interface Layer | Mobile app and optional web portal for patients, caregivers, and providers. | Continuous Health Monitoring, Provider and Customer Connectivity |
| Application Layer | Core logic for reminders, AI insights, and notifications. | Medication and Care Plan Reminders, Personalized AI Health Insights |
| Integration Layer | Connects to external APIs for wearables, EHR systems, and billing. | Integration Components, Finance |
| Data Layer | Stores structured and unstructured health data in a secure cloud database with analytics capabilities. | Universal Data Interoperability |
| Security and Privacy Layer | Manages encryption, consent, authentication, and compliance. | Security and Privacy |

A diagram of a software application

AI-generated content may be incorrect.

Figure 1. High-Level Architecture of CGI Digital Health Companion

* + 1. **LOW-LEVEL DESIGN**

|  |  |  |
| --- | --- | --- |
| Module | Function | Tools/Technologies |
| Integration Components | SDK-based connectors for Smart Rings (Oura, Samsung, Ultrahuman, RingConn, Movano Evie). | OAuth 2.0, Oura API v2, Health Data SDK / Health Connect |
| Continuous Health Monitoring | Collects and displays vitals, sleep, activity data. | Real-time stream via Kafka or Firebase |
| Medication & Care Plan Reminders | Smart scheduler for medication, refill, and escalation. | CRON scheduler, Push notifications |
| Provider & Customer Connectivity | One-tap messaging and caregiver dashboard. | WebSockets, Secure Chat API, Firebase Cloud Messaging |
| Personalized AI Health Insights | ML-based health risk scoring and chatbot integration. | TensorFlow, GPT-based health assistant |
| Universal Data Interoperability | Aggregates and maps data formats from different sources. | ETL pipeline, HL7/FHIR data model |
| Privacy And Security | Encryption, access control, consent tracking. | AES-256, JWT, MFA, audit logs |
| Finance Integration | Billing and payment system link (optional). | Stripe/PayPal API integration |

* + 1. **IMPACT ANALYSIS**

The potential secure and AI-powered mobile and web-based companion will have an Omni dimensional effect on the organization, the persons using it, and the technology ecosystem.

* **Business Impact**: CGI will move towards the traditional enterprise projects to a consumer-based model, which provides a constant level of health engagement as a B2B2C form. This improves brand awareness, retention and generates new opportunities of subscription based revenue.
* **Technical Impact**: The use of wearable devices, home sensors, and provider systems, with integration, creates a complex system which is scalable. It needs powerful interoperability (FHIR/HL7), sophisticated cybersecurity measures (AES-256 encryption, MFA) as well as AI-based analytics pipelines with the personalized insights. This modernizes the infrastructure of CGI but add to the capacity requirements of clouds as well as data governance.
* **User Impact**: Patients are able to have real-time information on their health measures and smooth access to care teams. Synchronized data can be accessed by the providers to make timely decisions to enhance preventive care and lower hospital re-admissions. Nonetheless, AI-based features will need the initial onboarding of users to take advantage of them safely.
  + 1. **OUT OF SCOPE**

The out of scope of CGI Digital Health Companion project is:

* **Hardware development:** Hardware developing or designing new wearable devices, sensors, or IoT hardware.
* **Clinical decision-making:** The system will not diagnose, prescribe, or replace professional medical judgment.
* **Insurance and billing integrations:** The direct claim processing involving third-party insurers is not a part of this stage.
* **Legacy system compatibility:** Interaction with the old EHR systems, which lack the FHIR/HL7 APIs.
* **Marketing and pricing activities:** Customer acquisition, partner pricing models, and advertising.
* **Language localization:** only English (and maybe French) will be supported at the first release.
* **Advanced AI research:** Future releases will consider the use of predictive analytics to model the health trends or long-term outcomes of the whole population.
  + 1. **RISK AND MITIGATION**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Risk ID | Risk Description | Impact Level | Likelihood | Mitigation Strategy |
| R1 | Data privacy or security breach due to handling of sensitive health information. | High | Medium | Store data in a secure place using a strong password, encrypted storage and only authorized users can access it. |
| R2 | Incompatibility in wearable devices, sensors or provider systems. | High | Medium | Perform a test of all equipment prior to use and select systems that adhere to common standards of data. |
| R3 | The inaccuracy or bias of the AI model on personalized insights. | High | Low | Check AI are reviewed periodically and checked by experts to establish accuracy. |
| R4 | Poor user adoption because of not being user-friendly or having no training. | Medium | Medium | Users should have an easy to use app and should also provide user training or help videos. |
| R5 | Failure of the cloud, or slow response affecting real time monitoring and communication. | Medium | Low | Trust the cloud vendors and do frequent system reviews and backups. |
| R6 | Failure to meet schedules and scope because of the changing partner requirements. | Medium | Medium | Think through beforehand and negotiate about changes promptly with all partners. |

## **POSSIBLE SOLUTION #3 – (DO NOTHING METHOD)**

CGI is not investing in the new healthcare product. CGI will continue their healthcare operations with the following directions.

* Project based work.
* Government-heavy clients.
* Working with existing processes and teams.
* No organizational or tech changes.
* No private sector pivot.
  + 1. **IMPACT ANALYSIS**

**Business**

* CGI’s healthcare revenue would likely remain stable in the short term, as the company continues to serve existing government clients.
* However, without entering the fast-growing private digital health market, CGI risks missing out on major revenue opportunities in the future.

**Business Impact**

* CGI’s healthcare revenue would likely remain stable in the short term, as the company continues to serve existing government clients.
* However, without entering the fast-growing private digital health market, CGI risks missing out on major revenue opportunities in the future.

**Strategic Impact**

* Continued dependence on government contracts limits CGI’s ability to diversify and expand into new healthcare sectors.
* Competitors such as Accenture and Deloitte are gaining an edge through proprietary health platforms, increasing market pressure on CGI.
* Over time, CGI’s brand image could appear less innovative and adaptable in a rapidly evolving industry.

**Technical Impact**

* The current technology landscape would remain unchanged, with no integration of AI or wearable health data tools.
* This approach keeps legacy systems in place, limiting scalability and innovation potential.

**Operational Impact**

* Daily operations would continue as usual, offering consistency but little innovation.
* Employees would have fewer chances to learn emerging technologies such as AI and mobile health app development.

**Customer Impact**

* Government clients would continue to receive standard services, but CGI might struggle to attract private hospitals and insurers seeking digital health solutions
* The company would also lose the opportunity to directly engage with patients or caregivers through connected care tools.

**Financial Impact**

* Financially, this option poses low immediate cost and minimal short-term risk.
* In the long run, however, CGI could see slower financial growth as competitors captured the expanding digital health market.

(CGI, 2025n; CGI 2025o; CGI 2025p; CGI 2025q; MarketsandMarkets, 2025; PWC, 2025a; PWC 2025b)

* + 1. **RISK AND MITIGATION**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ID | Risk (Do Nothing) | Risk Occurrence | Impact | Mitigation (Minimal-Effort) |
| R1 | Heavy dependence on government contracts could limit business flexibility and growth opportunities. | High | High | Conduct periodic market research and small pilot projects with private healthcare providers to test new partnerships. |
| R2 | Competitors with advanced digital health products may capture a larger market share, reducing CGI’s relevance. | Medium | High | Reseller agreements with established health tech companies to stay competitive. |
| R3 | Lack of new projects may slow innovation and skill development among employees. | High | Medium | Offer short innovation challenges or targeted training in AI, data analytics, and interoperability tools such as FHIR. |
| R4 | Limited presence in private and consumer (B2B2C) markets may weaken brand visibility. | High | High | Provide advisory and consulting services to private providers and promote CGI’s past healthcare successes through case studies. |
| R5 | Missing out on recurring revenue from digital health solutions may reduce long-term profitability. | High | High | Introducing optional subscription-based support services for existing government clients. |

A diagram of risk impact

AI-generated content may be incorrect.

(Accenture, 2024; CGI, 2025b; CGI, 2025d; Deloitte, 2025; MarketsandMarkets, 2025)

**Summary for “Do-Nothing”**

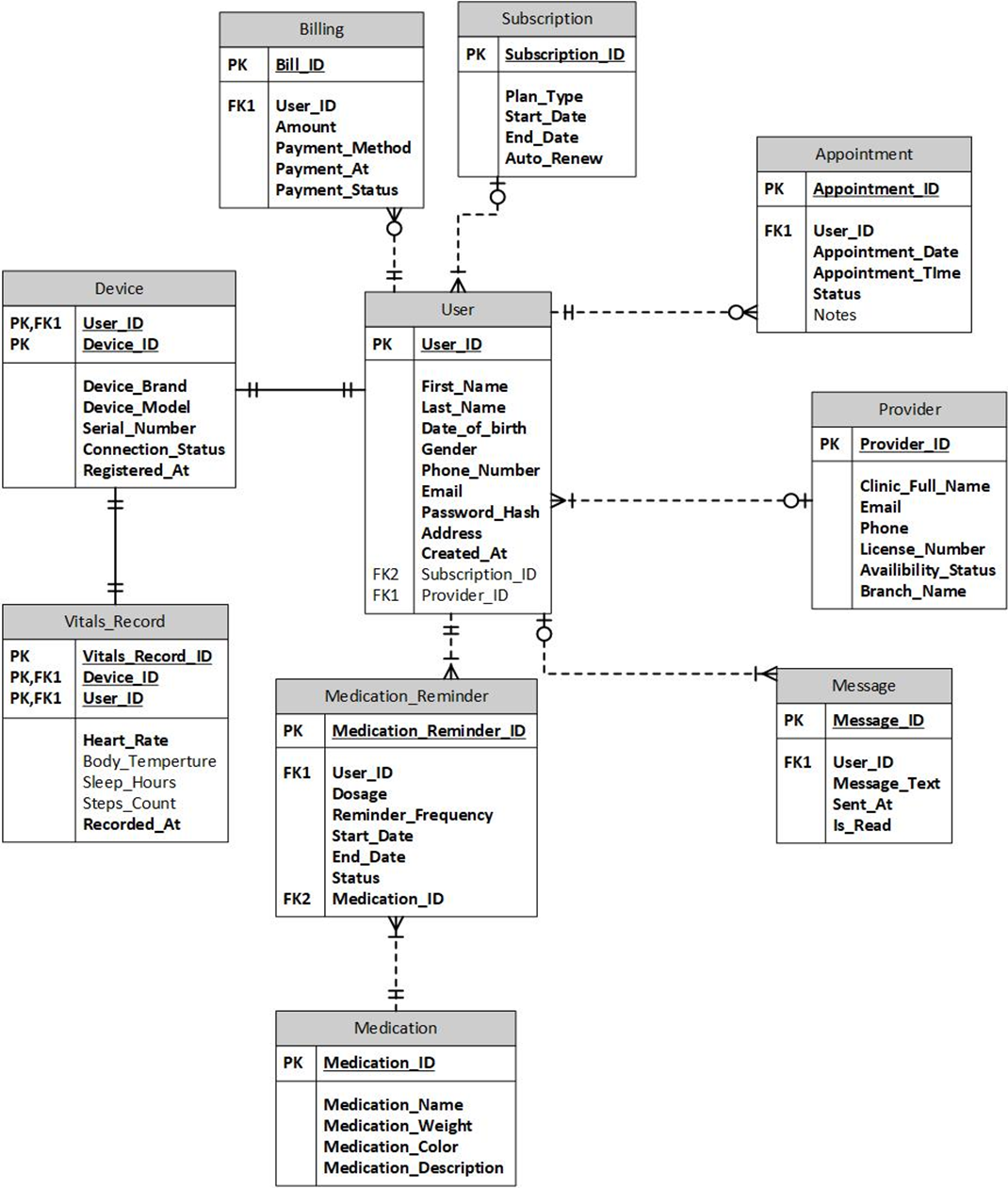
The “Do Nothing” approach allows CGI to continue operating with its existing teams, technology, and government-focused business model, avoiding any new financial or technical risks in the short term. However, staying passive limits CGI’s ability to grow in the fast-expanding private healthcare and digital health markets. As global healthcare providers increasingly adopt AI, mobile, and data-driven platforms, maintaining the status quo could reduce CGI’s competitiveness and innovation potential over time. While stable for now, this option does not align with CGI’s long-term vision to expand into the B2B2C digital health ecosystem and diversify revenue sources.

(Accenture, 2024; CGI, 2025b; CGI, 2025d; Deloitte, 2025; MarketsandMarkets, 2025)

## **EVALUATION CRITERIA**

|  |  |  |
| --- | --- | --- |
| Criteria | Description | Priority |
| Cost Efficiency | Total cost of implementation and maintenance. | High |
| Implementation Timeline | Time to deploy solution organization-wide. | Medium |
| Scalability | Ability to expand across multiple healthcare partners. | High |
| Regulatory Compliance | Adherence to HIPAA, PHIPA, and GDPR standards. | High |
| User & Partner Adoption | Ease of integration for patients and providers. | High |
| Return on Investment (ROI) | Projected benefit over 3–5 years. | High |
| Innovation & Differentiation | Adds measurable competitive advantage. | Medium |

# **SOLUTION DESIGN**



## **PURPOSE OF EACH TABLE (ENTITY)**

|  |  |
| --- | --- |
| Table Name | Purpose |
| User | Stores all system users including patients, caregivers, and healthcare providers. |
| Provider | Contains professional and organizational details about healthcare providers (e.g., clinic, license, status). |
| Device | Registers wearable or connected health devices linked to a specific user for tracking vitals. |
| Vitals\_Record | Records all health readings (heart rate, temperature, sleep hours, steps) from each device. |
| Medication | Stores details of medications available or prescribed, including name, color, and description. |
| Medication\_Reminder | Manages reminders for users’ medication schedules, frequency, and linked medications. |
| Appointment | Tracks patient–provider appointment details such as date, time, and notes. |
| Message | Handles secure messages exchanged between users (patients) and providers. |
| Subscription | Defines user subscription plans (plan type, start/end date, renewal settings). |
| Billing | Logs payment transactions linked to user subscriptions and providers. |

## **RANGE OF VALUES**

|  |  |  |  |
| --- | --- | --- | --- |
| Table Name | Attribute | Data Type | Example Range / Format |
| User | User\_ID | INT (auto) | 100001, 235234 |
|  | First\_Name | VarChar(50) | Julie |
|  | Last\_Name | VarChar(50) | Jackson |
|  | Date\_of\_birth | Date | 1976-03-18 |
|  | Phone\_Number | VarChar(20) | +1-123-234-3456 |
|  | Email | VarChar(100) | Jjacksob@email.com |
|  | Password\_Hash | VarChar(255) | #$dsflk834 |
|  | Address | VarChar(255) | 123 Main St, Toronto, ON |
|  | Create\_At | Datetime (auto) | 2025-10-30 09:45:00 |
|  | Provider\_ID | INT | P0001 |
|  | Subscription\_ID | INT | S001 |
| Provider | Provider\_ID | INT (auto) | P0001 |
|  | Clinic\_Full\_Name | VarChar(100) | Downtown Health Centre |
|  | Email | VarChar(100) | dr.mohana@clinic.ca |
|  | Phone | VarChar(20) | +1-416-555-8790 |
|  | License\_Number | VarChar(50) | ON-MD-56789 |
|  | Availibility\_Status | Varchar(20) | Online, Offline, On Leave |
|  | Branch\_Name | VarChar(100) | Toronto East Clinic |
| Device | Device\_ID | INT (auto) | D0001 |
|  | User\_ID | INT | 100001 |
|  | Device\_Brand | VarChar(50) | Fitbit, Oura, Garmin |
|  | Device\_Model | VarChar(50) | Versa 3, Galaxy Watch 6 |
|  | Serial\_Number | VarChar(50) | SN-A93247FQX |
|  | Connection\_Status | VarChar(20) | Connected / Disconnected |
|  | Registered\_At | Datetime (auto) | 2025-10-30 08:45:00 |
| Vitals\_Record | Vitals\_Record\_ID | INT (auto) | VR0001 |
|  | Device\_ID | INT | D0001 |
|  | Heart\_Rate | INT | 40-200 |
|  | Body\_Temperture | Decimal(4,1) | 36.6 |
|  | Sleep\_Hours | Decimal(3,1) | 6.5, 7.0 |
|  | Steps\_Count | INT | 2345 |
|  | Recorded\_At | Datetime (auto) | 2025-10-30 07:45:00 |
| Medication | Medication\_ID | INT (auto) | M0001 |
|  | Medication\_Name | VarChar(100) | Atorvastatin |
|  | Medication\_Weight | Decimal(5,2) | 10.00 mg |
|  | Medication\_Color | VarChar(20) | Yellow, White |
|  | Medication\_Description | Text | Used to lower cholesterol levels. |
| Medication\_Reminder | Medication\_Reminder\_ID | INT (auto) | MR0001 |
|  | User\_ID | INT | 100001 |
|  | Dosage | Varchar(50) | 5 mg, 10ml |
|  | Reminder\_Frequency | Varchar(50) | Daily、Weekly、As Needed |
|  | Start\_Date | Date | 2025-10-02 |
|  | End\_Date | Date | 2025-10-24 |
|  | Status | Varchar(30) | Active |
|  | Medication\_ID | INT | M0001 |
| Appointment | Appointment\_ID | INT (auto) | AP0001 |
|  | User\_ID | INT | 100001 |
|  | Appointment\_Date | Date | 2025-12-02 |
|  | Appointment\_Time | Time | 10:00:00 , 14:30:00 |
|  | Status | VarChar(20) | Scheduled |
|  | Notes | Text | Follow-up on medication change. |
| Message | Message\_ID | INT (auto) | MG0001 |
|  | Message\_Text | Text | Can I reschedule my appointment for tomorrow? |
|  | Sent\_At | Datetime | 2025-11-04 14:25:00 |
|  | Is\_Read | Boolean | True=read, False=unread |
|  | User\_ID | INT | 100001 |
| Subscription | Subscription\_ID | INT (auto) | S0001 |
|  | Plan\_Type | Varchar(30) | Premium |
|  | Start\_Date | Date | 2025-10-01 |
|  | End\_Date | Date | 2026-10-01 |
|  | Auto\_Renew | Boolean | True=auto renew, False=manual |
| Billing | Bill\_ID | INT (auto) | B00001 |
|  | User\_ID | INT | 100001 |
|  | Amount | Decimal(10,2) | 29.99 |
|  | Payment\_Method | Varchar(30) | Credit Card, PayPal, Insurance |
|  | Payment\_At | Datetime | 2025-10-01 09:30:00 |
|  | Payment\_Status | Varchar(20) | Paid, Pending, Failed |

## **PRIMARY KEYS (PK) PER TABLE**

|  |  |
| --- | --- |
| Table | Primary Key |
| User | User\_ID |
| Provider | Provider\_ID |
| Device | Device\_ID |
| Vitals\_Record | Vitals\_Record\_ID |
| Medication | Medication\_ID |
| Medication\_Reminder | Medication\_Reminder\_ID |
| Appointment | Appointment\_ID |
| Message | Message\_ID |
| Subscription | Subscription\_ID |
| Billing | Bill\_ID |

## **FOREIGN KEYS (FK) AND RELATIONSHIPS**

|  |  |  |  |
| --- | --- | --- | --- |
| Table | Foreign Key | References | Description |
| User | Subscription\_ID | Subscription.Subscription\_ID | Each user can have one subscription plan. |
| Provider\_ID | Provider.Provider\_ID | Links user to a specific provider (optional). |
| Provider | — | — | Acts as a parent for User; no FK here. |
| Device | User\_ID | User.User\_ID | Each device belongs to one user. |
| Vitals\_Record | Device\_ID | Device.Device\_ID | Each vitals record is captured by a specific device. |
| Medication | — | — | Acts as a parent for Medication\_Reminder; no FK here. |
| Medication\_Reminder | User\_ID | User.User\_ID | Each reminder belongs to a specific user. |
| Medication\_ID | Medication.Medication\_ID | Each reminder is for one medication. |
| Appointment | User\_ID | User.User\_ID | Each appointment is linked to a user (patient). |
| Message | User\_ID | User.User\_ID | Each message is associated with a user. |
| Subscription | — | — | Acts as a parent for User; no FK here. |
| Billing | User\_ID | User.User\_ID | Each billing record belongs to one user. |

## **NORMALIZATION**

Normalization of database tables was carried out using the standard three-step normalization: 1NF, 2NF, and 3NF. This, therefore, has been aimed at eliminating redundancy, ensuring data integrity, and enhancing the efficiency of queries.

Each normalization stage will be applied systematically as follows:

* **1NF (First Normal Form):** All repeating groups and multi-valued attributes were removed so that each column contains atomic values only.
* **2NF (Second Normal Form):** Partial dependencies were removed by making all non-key attributes depend on the whole primary key. For example, medication information was placed in a separate table, Medication, to prevent duplication within the Medication\_Reminder table.
* **3NF:** Transitive dependencies were eliminated, so that the non-key attributes depend on no other non-key attributes. This is to ensure that each table represents a single concept, for example, Medication\_Reminder has now been normalized to store just the scheduling information; Medication stores all the details about each drug.

These examples represent the normalization technique that was applied to all other tables in the designed database. With these steps in normalization, the final database structure would come under Third Normal Form (3NF), resulting in consistency, scalability, and a logical separation between entities.

* 1. **Medication\_Reminder -** 1NF

Table: Medication\_Reminder

PK – Medication\_Reminder\_ID

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Medication\_Reminder\_ID** | **User\_ID** | **Medication\_Name** | **Dosage** | **Frequency** | **Start\_Date** | **End\_Date** | **Status** | **Medication\_Color** | **Medication\_Description** |

* 1. **Medication\_Reminder –** 2NF

Table: Medication\_Reminder

PK – Medication\_Reminder\_ID

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Medication\_Reminder\_ID** | **User\_ID (FK)** | **Medication\_ID (FK)** | **Dosage** | **Frequency** | **Start\_Date** | **End\_Date** | **Status** |

Table: Medication

PK – Medication\_ID

|  |  |  |  |
| --- | --- | --- | --- |
| **Medication \_ID** | **Medication\_Name** | **Medication\_Color** | **Medication\_Description** |

* 1. **Medication\_Reminder –** 3NF
* All attributes in each table depend only on their respective primary key.
* No attribute depends on another non-key field.
* Final schema fully normalized and dependency-free
  1. **Device** – 1NF

Table: Vitals\_Data (Unnormalized)

PK – Record\_ID

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Record\_ID** | **User\_ID** | **User\_Name** | **Device\_Brand** | **Device\_Model** | **Heart\_Rate** | **Body\_Temperature** | **Sleep\_Hours** | **Steps\_Count** | **Recorded\_At** |

* 1. **Device** – 2NF

Table: User

PK – User\_ID

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **User\_ID** | **First\_Name** | **Last\_Name** | **Email** | **Heart\_Rate** | **Phone\_Number** |

Table: Device

PK – Device\_ID

FK – User\_ID -> User.User\_ID

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Device\_ID** | **User\_ID(FK)** | **Device\_Brand** | **Device\_Model** | **Serial\_Number** | **Registered\_At** |

Table: Vitals\_Record

PK – Vitals\_Record\_ID

FK – Device\_ID -> Device.Device\_ID

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Vitals\_Record\_ID** | **Device\_ID(FK)** | **Heart\_Rate** | **Body\_Temperature** | **Sleep\_Hours** | **Steps\_Count** | **Recorded\_At** |

* 1. **Device** – 3NF
* All attributes in each table depend only on their respective primary key.
* No attribute depends on another non-key field.
* For example, in Vitals\_Record, each measurement depends only on Vitals\_Record\_ID.
* In Device, brand/model info depends only on Device\_ID, not on user details.

# **SOLUTION OPTIONS**

To evaluate the most effective strategy for meeting CGI’s new digital healthcare functionality requirements, our team compared two potential solutions using a structured evaluation matrix. The criteria included cost efficiency, scalability, compliance, innovation, user adoption, and five-year return on investment (ROI). The “Do Nothing” approach was used as a baseline for comparison.

## **OPTION 1 – BUILD THE CGI DIGITAL HEALTH COMPANION**

This option involves developing a **secure, AI-enabled mobile and web-based healthcare companion app** that integrates with wearable devices, hospital EHRs, and provider networks. The platform would deliver **personalized insights**, **real-time monitoring**, and **data-driven healthcare analytics** to patients and clinicians.

### **FIVE-YEAR ROI SUMMARY**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| Development (CAPEX) | **$ 900,000** | - | - | - | - |
| System architecture & design | $250,000 | - | - | - | - |
| Platform & app development | $400,000 |
| Integration with existing systems | $150,000 |
| Security & compliance setup | $60,000 |
| Training & change management | $40,000 |
| Operations & Maintenance (OPEX) | **$180,000** | **$190,000** | **$200,000** | **$210,000** | **$220,000** |
| Cloud hosting & storage | $60,000 | $65000 | $70,000 | $75,000 | $80,000 |
| Tech support & maintenance | $50,000 | $55,000 | $60,000 | $65,000 | $70,000 |
| Software licenses | $4,0000 | $40,000 | $40,000 | $40,000 | $40,000 |
| Monitoring & security operations | $30,000 | $30,000 | $30,000 | $30,000 | $30,000 |
| Total Cost | $1,080,000 | $190000 | $200,000 | $210,000 | $220,000 |
| Revenue + Efficiency Benefits | $0 | $500,000 | $750,000 | $900,000 | $1,000,000 |
| Productivity Gains | $50,000 | $100,000 | $150,000 | $200,000 | $250,000 |
| Total Benefits | **$50,000** | **$600,000** | **$900,000** | **$1,100,000** | **$1,250,000** |
| Net Benefit | **–$1,030,000** | **$410,000** | **$700,000** | **$890,000** | **$1,030,000** |
| ROI (5 Years) | **-47%** | **18%** | **47%** | **78%** | **105%** |

**Result:** Over five years, the Digital Health Companion demonstrates a **positive ROI of approximately 105%**, with a **payback period of around 2.5 years**. Beyond financial gains, it enhances CGI’s competitive position in the **digital health and AI-based analytics market**, aligning with growing industry demand.

## **OPTION 2 – “DO NOTHING” (BASELINE)**

The baseline assumes CGI continues operating its existing systems without introducing new digital health services. Although it avoids upfront investment, it results in **lost revenue opportunities**, **higher maintenance costs**, and **reduced competitiveness**.

### **FIVE-YEAR ROI SUMMARY**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| Legacy Maintenance Cost | $150,000 | $150,000 | $150,000 | $150,000 | $150,000 |
| Missed Market Revenue & Client Losses | $700,000 | $700,000 | $700,000 | $700,000 | $3,500,000 |
| Total Loss per Year | $850,000 | $850,000 | $850,000 | $850,000 | $850,000 |
| Cumulative Loss ($) | –$ 850,000 | -$1,700,000 | -$2,550,000 | -$3,400,000 | -$4,250,000 |
| ROI (5 Years) | **-115%** | **-210%** | **-290%** | **-335%** | **-367%** |

**Result:** The **“Do Nothing”** option leads to a **negative ROI of approximately –367%** by 2029, as CGI continues losing market opportunities to competitors implementing advanced digital health solutions.

(Accenture, 2024; CGI, 2025; Deloitte, 2025; Market and Market, 2025; PWC, 2025a)

## **FIVE-YEAR ROI COMPARISON (2025–2029): CGI DIGITAL HEALTH COMPANION VS. BASELINE**

This figure shows how the Return on Investment (ROI) for both solution options changes over the five-year period from 2025 to 2029. The CGI Digital Health Companion (Option 1) steadily improves year after year, reaching a ROI of about 105% by 2029. In contrast, the “Do Nothing” baseline (Option 2) continues to decline, ending with a negative ROI of roughly –367%.

A graph showing the number of patients with the number of patients with the number of patients with the number of patients with the number of patients with the number of patients with the number of patients with the

AI-generated content may be incorrect.

## **EVALUATION SUMMARY**

|  |  |  |  |
| --- | --- | --- | --- |
| Criteria | Weight | Option 1 | Option 2 |
| Functional Coverage | 20 % | 10 | 4 |
| Integration & Scalability | 20 % | 9 | 5 |
| Compliance & Security | 15 % | 10 | 6 |
| Cost Efficiency | 15 % | 7 | 9 |
| Maintainability | 10 % | 8 | 5 |
| ROI (5 Years) | 20 % | 9 | 2 |
| Weighted Average Score | 100 % | **8.9** | **5.2** |

## **RECOMMENDATION**

Based on the evaluation, the team **recommends Option 1 – Build the CGI Digital Health Companion**. This solution provides measurable financial benefits, achieving a **positive ROI of approximately 105% by 2029**, while advancing CGI’s competitive position in the digital healthcare industry.

In contrast, the **“Do Nothing”** option generates a **negative ROI of –367%**, offering no innovation or future growth potential.

|  |
| --- |
| **Recommended Solution:** Option 1 – Build the CGI Digital Health Companion  **5-Year ROI:** ≈ 105 %  **Payback:** 2.5 years  **Do Nothing ROI:** ≈ – 367 % which is not recommended |

## **TO-BE PROCESS FLOW**

A diagram of a company

AI-generated content may be incorrect.

# **RISK MANAGEMENT PLAN**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Risk ID | Risk Description | Severity / Impact | Probability | Probable Cause | Mitigation Strategy | Traceability | Ratings (1-10) |
| R1 | The app may record wrong vitals due to sensor error or poor Bluetooth connection, showing false readings. | High | Medium | Sensor faults, signal loss | Test devices before use and add accuracy checks in software. | FR 2.1 – Continuous Health Monitoring | 8 |
| R2 | Continuous data tracking may drain the phone battery quickly and make users stop using the app. | Medium | High | Frequent sync, heavy processing | Optimize background processes and allow users to set data-update frequency. | FR 2.1 – Continuous Health Monitoring | 7 |
| R3 | New wearable device updates may break existing app connections or data sync. | High | Medium | Third-party updates, outdated SDKs | Regularly test integration after each device update; keep SDKs current. | FR 2.2 – Integration Components | 7 |
| R4 | The user may face difficulty pairing devices, leading to frustration or support issues. | Medium | High | Complicated pairing steps | Provide a clear setup guide and automatic troubleshooting prompts. | FR 2.2 – Integration Components | 7 |
| R5 | Missed or delayed reminder notifications could cause medication non-adherence. | High | Medium | Notification delay | Test reminder reliability; allow SMS/email backup alerts. | FR 2.3 – Medication & Care Plan Reminders | 8 |
| R6 | Chat or message system may fail during peak load, delaying patient–doctor communication. | High | Medium | Server overload | Use cloud-based servers and a retry mechanism for messages. | FR 2.4 – Provider & Customer Connectivity | 8 |
| R7 | AI may give wrong or confusing advice, leading to user anxiety or misinterpretation. | High | Medium | AI misclassification | Have the medical team review AI outputs regularly; show disclaimer. | FR 2.5 – Personalized AI Health Insights | 8 |
| R8 | Data sharing between hospital systems and apps may fail or duplicate records. | High | Medium | Format mismatch, sync errors | Test data exchange with hospitals; use standard FHIR / HL7 formats | FR 2.6 – Universal Data Interoperability | 8 |
| R9 | Unauthorized access or hacking may expose patient health data. | High | Low–Medium | Cyberattack, weak credentials | Use MFA, strong encryption, and regular security checks. | FR 2.7 – Privacy & Security | 8 |
| R10 | Payment gateway failure may stop subscription renewals or double-charge users. | Medium | Medium | Gateway downtime | Use a trusted payment provider and enable transaction logs with alerts. | FR 2.8 – Billing & Payment System | 6 |

# **IMPLEMENTATION/DEPLOYMENT STRATEGY**

# 

# 

## **DEPLOYMENT APPROACH**

Adopt a phase rollout rather than “big bang” launch to minimize operational link.

|  |  |  |
| --- | --- | --- |
| Phase 1 – Pilot Launch | Limited deployment to one hospital and select patient group. | Ensure that the gadget is functioning, the AI is correct and the security regulations are adhered to. |
| Phase 2- Controlled Expansion | Extending to multiple healthcare partners (B2B2C model). | Monitor user adoption, response times, and resolve defects. |
| Phase 3 – full rollout | Nationwide bilingual release (English/French). | Maintain 99.9% availability of the system and count the important performance figures. |

## **MIGRATION & DATA READINESS**

To ensure that transitioning to the new system is safe and stress-free:

* + We will use trusted industry tools built around the FHIR and HL7 standards, guaranteeing secure and standards-based data transfer.
  + No live data goes live until users, our frontline experts, confirm it meets expectations for accuracy and accessibility.
  + Before launch, every data stream is double-checked for encryption and integrity, so privacy concerns are put to rest.

## **TRAINING AND SUPPORT**

True adoption comes from offering people the right support at the right moment:

* + We will launch a “Train-the-Trainer” program, empowering local admin champions to support their teams.
  + Provide digital manuals, video tutorials, and FAQ chat support.
  + Establish a 3-tier **helpdesk:** Level 1 (User support) → Level 2 (Technical) → Level 3 (Engineering).

## **BACKOUT / CONTINGENCY PLAN**

If anything goes wrong, being ready to act is non-negotiable:

* + Make full copy of the system at each release.
  + Roll back to the last stable version within 60 minutes if major defects arise.
  + Inform stakeholders and begin response to the incident in two hours.

## **GOVERNANCE & COMPLIANCE**

Trust and transparency are core values:

* + All deployments use ITIL-based best practices and secure executive approval before go-live.
  + Ensure compliance with HIPAA, GDPR, and PHIPA for all data exchanges.
  + Conduct a review every three months and maintain a detailed record of all the changes.

## **POST IMPLEMENTATION REVIEW**

Success is measured by more than the absence of issues:

* + Ensure that the system is online at least 99.9 percent of the time, data lag is 2 seconds or a lower, and user usage is increasing at minimum 10 percent per month.
  + Gather feedback of the users, document what we have learnt, and revise the risk log in the subsequent releases.
  + The risk log is updated regularly, helping the team stay ahead of challenges.

# **TRANSITION REQUIREMENTS**

Upon the Digital Health Companion deployment, continued assistance is provided between CGI and our team. The platform is owned by CGI and is operated on a day to day basis, with our team offering expert technical services to deal with more complicated problems, integrations, and improvements.

## **ONGOING SUPPORT (PROVIDED BY OUR TEAM)**

The platform is still being supported on the basis of more technical knowledge by our team:

### **LEVEL 3 TECHNICAL SUPPORT**

* Resolves system level and complex defects.
* Deal with performance bugs or data error bugs of high priority.
* Premier troubleshooting in the field of AI, analytics, and alerts.
* Offer hotfix and patch releases.

### **INTEGRATION MANAGEMENT**

* Maintain and keep API connections with wearables (Fitbit, Garmin, Apple Health, etc.)
* Troubleshoot sync failures or API deprecations
* Interoperability Support HL7/FHIR with hospital EMR systems.

### **AI MODEL MAINTENANCE**

* Establish AI models that are more accurate in detecting anomalies, insights and health scores.
* Monitor AI drift and re‑train models when data patterns change
* Carry out testing, each time an AI update or rules engine is made.

### **RELEASE & ENHANCEMENT SUPPORT**

* Implement new features requested by CGI
* Perform reviews of the conduct and optimization.
* Give usability and compatibility with new devices support on a continuous improvement basis.

## **CGI OWNERSHIP & GOVERNANCE RESPONSIBILITIES**

CGI retains the general ownership of the platform and regulates the operation environment:

### **PLATFORM GOVERNANCE**

* Maintains product roadmap and gives priority on improvements.
* Accepts new features, integrations and security releases.
* Keeps regulatory (PHIPA/HIPAA) compliance.

### **HOSTING & INFRASTRUCTURE**

* Operates cloud platform, servers, uptime, security surveillance.
* Guarantees 99.9% availability and allocation of cloud resources.
* Manages backup and disaster recovery functions.

### **OPERATIONAL REPORTING**

* CGI is receiving usage analytics, SLA reporting, alert volumes and system performance metrics.
* Monitors level of service and satisfaction with the user.

### **DATA OWNERSHIP**

* Possesses all patient, clinical and operational data.
* Policies in controls data access, storage, retention and compliance.

## **Support Model (LEVEL 1, LEVEL 2, LEVEL 3 BREAKDOWN)**

An effective support tier model makes responsibility well defined:

### **LEVEL 1 SUPPORT — CGI SERVICE DESK (CGI RESPONSIBILITY)**

Handles first‑level issues such as:

* User login issues
* Password resets
* Simple trouble (notification issues, crash of the apps)
* Introduction to users to the basic features.
* Creation of tickets and Level 2 escalation.

### **LEVEL 2 SUPPORT — CGI APPLICATION SUPPORT (CGI RESPONSIBILITY)**

Handles moderately complex issues:

* Manages moderately difficult problems:
* Configuration modification on a minor level.
* Data display issues
* Device pairing guidance
* Repairing failure to receive a reminder or a message.
* Increase to L 3 in case of code-level remedy is required.

### **LEVEL 3 SUPPORT — OUR TEAM (DEEP TECHNICAL SUPPORT)**

Handles the most complex issues involving:

* Code changes caused by system defects.
* Misclassification or error in AI models.
* Breakages caused by changes in wearable API.
* EMR/FHIR implementation breakdowns.
* Security patches & major release cycles

# **TEST STRATEGY FOR CGI DIGITAL HEALTH COMPANION APP**

# 

## **SCOPE**

This test strategy covers all quality assurance activities for the CGI Digital Health Companion app, ensuring the delivered solution meets client requirements for functionality, security, performance, usability, and regulatory compliance (HIPAA, GDPR). The strategy sets out the overall testing approach, defect management, entry and exit criteria, and roles for review and approval, supporting CGI and our shared commitment to a quality, patient-focused digital health experience.

### **REVIEWERS**

* **Project Sponsor:** Blair Moch (CGI)
* **Project Manager:** Mohana Dutta
* **Quality Assurance (QA) Lead:** Simon Sarkodie
* **Business Analyst Team:** Pentagon Nexus Consulting Group

### **APPROVAL AUTHORITY**

This document will be reviewed and approved by the QA Lead and Project Sponsor prior to the commencement of User Acceptance Testing (UAT).

### **TESTING TIMELINES**

* Testing activities will be conducted in the following stages:
* Unit Testing Week 1–2
* Integration Testing Week 3–4
* System Testing Week 5–6
* User Acceptance Testing Week 7
* Regression & Final Sign-Off Week 8

## **TESTING APPROACH**

### **TESTING LEVELS**

* + **Unit Testing**: Developers conduct and document tests for each component (e.g., wearable device integration modules).
  + **Integration Testing**: Ensures seamless interaction between app modules and external systems (e.g., Apple HealthKit, hospital APIs).
  + **System Testing**: Verifies overall functionality and compliance with the business and regulatory requirements.
  + **User Acceptance Testing (UAT):** End-users and business stakeholders validate that the app meets their real-world needs before go-live.
  + **Regression Testing:** Executed after bug fixes or updates to confirm no new defects have been introduced.

### **TESTING TYPES**

* + **Functional Testing:** Validate app functionalities such as health tracking, AI insights, and provider messaging.
  + **Performance Testing:** Ensure response time ≤ 2 seconds under 1000 concurrent users.
  + **Security Testing:** Validate data encryption, access controls, and secure authentication (biometric, MFA).
  + **Usability Testing:** Assess ease of navigation and clarity of health insights.
  + **Compatibility Testing:** Validate app behavior across devices and platforms (iOS, Android, smart rings, etc.).

### **TEST APPROACH**

The testing approach will follow a hybrid Agile methodology emphasizing iterative validation, stakeholder involvement, and automation where feasible.

### **ROLES & RESPONSIBILITIES**

* + **QA/Test Lead:** Strategy, planning, oversight, and communication.
  + **Testers (QA Engineers):** Test execution and reporting.
  + **Developers:** Support test automation and fixing defects.
  + **Business Analysts**: UAT coordination and sign of

### **DEFECT MANAGEMENT**

* + **Defect Tracking Tool:** Jira or Azure DevOps.
  + **Process:** Defects will be logged, categorized (Critical, Major, Minor), and retested after fixes.
  + **Signoffs:**
    - Exit from each test phase requires QA and BA team sign-off.
    - Final UAT sign-off with the Project Sponsor and Product Owner.

## **TEST ENVIRONMENT**

**Environment Setup:**

* + **Development Environment:** Internal CGI environment for initial builds.
  + **Test Environment:** Production setup environment(s) will be provisioned, mirroring hardware, OS, browsers, network, security settings, and third-party integrations.
  + **UAT Environment:** Hosted on secure regional cloud servers.

**Backup & Restore:**

Dedicated test data will be generated, and a robust backup/restoration process will be in place to prevent data loss.

## **TESTING TOOLS**

|  |  |  |
| --- | --- | --- |
| Category | Tool | Purpose |
| Test Management | Jira / Azure DevOps | Requirement traceability and defect tracking |
| Automation | Selenium, Appium | Regression and cross-platform UI testing |
| API Testing | Postman | Validate API integrations with wearables and hospital systems |
| Performance | JMeter | Load and stress testing |
| Security | OWASP ZAP, Burp Suite | Vulnerability scanning and penetration testing |

## **RELEASE CONTROL**

All releases will follow CGI’s **Change and Release Management Policy**.

* + Each release will have a **version control number** (e.g., v1.0.1).
  + Test results and defect logs will be attached to the release documentation.
  + QA approval is mandatory before production deployment.
  + Post-release testing will verify successful deployment and user access
  + Releases progressing from one test stage to the next must pass review, with rollback plans documented in case of major issues

## **RISK ANALYSIS**

|  |  |  |
| --- | --- | --- |
| Risk | Impact | Mitigation Strategy |
| Integration failures with external APIs | High | Conduct early integration testing; use mock APIs. |
| Data privacy breaches | High | Implement end-to-end encryption and periodic security testing. |
| Incomplete test coverage | Medium | Develop a traceability matrix linking requirements to test cases. |
| Delays in wearable device certification | Medium | Parallel test using simulation devices. |

## **REVIEW AND APPROVALS**

All testing deliverables, including test cases, results, and defect reports, will undergo peer review and require formal approval before closure.

|  |  |  |  |
| --- | --- | --- | --- |
| Reviewer | Role | Approval Status | Date |
| Simon Sarkodie | Quality Assurance | Pending | TBD |
| Mohana Dutta | Project Manager | Pending | TBD |
| Meet Rajendrakumar Patel | Business Analyst | Pending | TBD |

**Document Control**

All changes are tracked in the document’s revision history, and approval signoffs are obtained prior to the start of formal testing stages.

# **REFERENCES**

Accenture. (2024). *Human by design*. <https://www.accenture.com/content/dam/accenture/final/accenture-com/document-2/Accenture-Technology-Vision-2024-Executive-Summary-OL.pdf>

Atlantis-Press. (2022). Financial Analysis of CGI Inc. <https://www.atlantis-press.com/article/125975357.pdf>

Button, A. (2025, August 15). Is Constellation Software a Buy? *Yahoo Finance*. <https://ca.finance.yahoo.com/news/constellation-software-buy-140000406.html?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce_referrer_sig=AQAAAC-kmoheOnO3Z_F5UxflzRVJoJOXzVPb_IBURPxP-m_m6rgWUeVhtHveYNGKJBFw4W93ElT6-rJb4376hPJAmKmCY2ZYGVJ0xMQIOHTvDI9jRpJCx5d3KoYGwdcF8lv5DLIN1Av6ZwOAHiFAr_lc1FJuW8VfYinNmhFgd-eHGu0S>

Canadian Healthcare Technology. (2015, May 20). *eHealth Ontario, CGI aim to resolve dispute*. <https://www.canhealth.com/2015/05/20/ehealth-ontario-cgi-aim-to-resolve-dispute/>

Canvas Business Model*. (2025). What Are Constellation Software's Growth Strategy and Future Prospects?* <https://canvasbusinessmodel.com/blogs/growth-strategy/constellation-software-growth-strategy>

CGI Inc. (2021). *Enhancing Care with the Patient Engagement Platform*. <https://www.cgi.com/sites/default/files/2021-09/patient-engagement-platform.pdf>

CGI Inc. (2022). *Management’s Discussion and Analysis.* <https://www.cgi.com/sites/default/files/2022-12/cgi-q4-2022-mda-en.pdf>

CGI Inc. (2023a). *Healthcare solutions: Digital transformation for better care.* <https://www.cgi.com/en/healthcare>

CGI Inc. (2023b). CGI annual report 2023. <https://www.cgi.com>

CGI Inc. (2024a). *Annual Report 2024*. [https://www.cgi.com/sites/default/files/2024-12/cgi-2024-annual-report.pdf](https://www.cgi.com/sites/default/files/2024-12/cgi-2024-annual-report.pdf?utm_source=chatgpt.com)

CGI inc. (2024b). *Investor Presentation Q4 2024*. [https://www.cgi.com/sites/default/files/2025-07/cgi-investor-presentation-en.pdf](https://www.cgi.com/sites/default/files/2025-07/cgi-investor-presentation-en.pdf?utm_source=chatgpt.com)

CGI Inc. (2024c). *Share Purchase Plan (SPP).* <https://www.cgi.com/sites/default/files/2024-10/oe-2025-share-purchaseplan-faq.pdf>

CGI Inc. (2024d). *CGI reports fourth quarter and Fiscal 2024 results.* <https://www.cgi.com/sites/default/files/2024-11/cgi-q4-2024-pr-2460621-en.pdf>

CGI Inc. (2024e). *CGI, a global end-to-end digital services leader.* <https://www.cgi.com/sites/default/files/2025-07/cgi-investor-presentation-en.pdf>

CGI Inc. (2024f). U.S. Department of State extends contract with CGI for application processing services for more than 21 million passports annually. <https://www.cgi.com/en/us-department-of-state-extends-contract-with-cgi-application-processing-services-for-more-than-21-million-passports-annually>

CGI Inc. (2025a). *2025 CGI Voice of Our Clients*. <https://www.cgi.com/en/voice-of-our-clients>

CGI Inc. (2025b). *About us*. <https://www.cgi.com/en/about-us>CGI Inc. (2025a). *The CGI Constitution: Defining the essence of who we are*. <https://www.cgi.com/en/about-us/constitution>

CGI Inc. (2025c). *Emerging technologies*. <https://www.cgi.com/en-ca/node/95685>

CGI Inc. (2025d). *Leadership team*. <https://www.cgi.com/en/about-us/leadership>

CGI Inc. (2025e). *Management’s Discussion and Analysis.* <https://www.cgi.com/sites/default/files/2025-04/cgi-q2-2025-mda-en.pdf>?

CGI Inc. (2025g). *Press Releases.* <https://www.cgi.com/en/press-releases/2024>

CGI Inc. (2025). *Providing human-centred services to drive digital healthcare transformation*. <https://www.cgi.com/canada/en-ca/health>

CGI Inc. (2025h). *CGI acquires Celero’s business serving credit union clients across Canada*. <https://www.cgi.com/en/cgi-acquires-celero-business-serving-credit-union-clients-across-canada>

CGI Inc. (2025i). *Mergers*. <https://www.cgi.com/en/mediacenter/acquisitions>

CGI Inc. (2025j). *CGI reports third quarter Fiscal 2025 results*. <https://www.cgi.com/en/cgi-reports-third-quarter-f2025-results>

CGI Inc. (2025k). *Investment Profile*. [https://www.cgi.com/en/investors/investment-profile](https://www.cgi.com/en/investors/investment-profile?utm_source=chatgpt.com)

CGI Inc. (2025l). Global delivery model. https://www.cgi.com/en/managed-it-outsourcing-services/global-delivery-model

CGI Inc. (2025m). Government. <https://www.cgi.com/en/government>

CGI Inc. (2025n). Heath IT Services. <https://www.cgi.com/us/en-us/health/it-services>

CGI Inc. (2025o). Healthcare. <https://www.cgi.com/canada/en-ca/health>

CGI Inc. (2025p). Health providers: Driving patient-centricity in a digital world. <https://www.cgi.com/en/health/providers>

CGI Inc. (2025d). *Financial reports*. <https://www.cgi.com/en/investors/financial-reports>

Davey, L. (2025, June 23). Top Ecommerce Payment Trends for 2025 (and Beyond). *Shopify*. <https://www.shopify.com/ca/blog/payment-trends>

DFCmodeling. (2025, January). *CGI Inc. SWOT Analysis*. <https://dcfmodeling.com/products/gib-swot-analysis?srsltid=AfmBOopl46gt25dEhEeooN0WMfQAE7xqLOgyvzyI0bKOF0xt4TuavfeA>

Ching, D. K. (2024, November 6). How To Start a Shopify Store (Step-by-Step Beginners Guide) 2024. *Thrive Internet Marketing Agency*. <https://thriveagency.com/news/how-to-start-a-shopify-store-step-by-step-beginners-guide/#:~:text=The%20key%20for%20Shopify%20beginners%20is%20to,up%20to%20a%20smooth%20and%20successful%20launch>.

Clarke, S. (2023, February 28). Analyst Commentary: OpenText broadens its portfolio with Micro Focus acquisition. *Omdia*. <https://omdia.tech.informa.com/om029704/analyst-commentary-opentext-broadens-its-portfolio-with-micro-focus-acquisition>

Constellation Software Inc. (2025a). *Acquiring, Managing & Building Market-Leading Software*. <https://www.csisoftware.com/>

Constellation Software Inc. (2025b). *Being Acquired*. <https://www.csisoftware.com/about-us/being-acquired>

Constellation Software Inc. (2025c). *Constellation Software Inc. Announces Results for the Fourth Quarter and Year Ended December 31, 2024 and Declares Quarterly Dividend.* <https://www.csisoftware.com/docs/default-source/press-releases/csi---press-release-q4-2024---final.pdf?sfvrsn=a6da3ec_3%2F+CSI---Press-Release-Q4-2024---Final+.pdf>

Consultancy.uk. (2022a, March 11). *CGI adds 3,000 staff to European team with acquisition of Umanis*. <https://www.consultancy.eu/news/7528/cgi-adds-3000-staff-to-european-team-with-acquisition-of-umanis>

Consultancy.uk. (2022b, April 22). *CGI buys French management consultancy Harwell Management*. <https://www.consulting.ca/news/2865/cgi-buys-french-management-consultancy-harwell-management>

Deloitte. (2025). Converge Health Care solutions. <https://www.deloitte.com/us/en/services/consulting/services/health-care.html>

Deloitte. (2025). *Measuring the ROI of digital transformation in health care*. <https://www.deloitte.com/us/en/Industries/life-sciences-health-care/articles/measuring-digital-transformation-roi.html>

Global Banking and Markets. (2024, October 11). *Asia Pacific and Latin America: an emerging pathway of opportunities.* <https://www.gbm.scotiabank.com/en/market-insights/article.global-transaction-banking.emerging-pathway.html>

GovConExec International. (2025, March 25). *CGI Expands IT Services With Novatec Acquisition*. <https://govconexec.com/2025/03/cgi-completes-novatec-acquisition/>

Guru99. (2025). *Test Strategy Document in Software Testing (Sample Template).* <https://www.guru99.com/test-strategy-document-in-software-testing.html>

Investors. (2025). *Q3 F2025 performance highlights*. <https://www.cgi.com/en/investors/investment-profile>

Market and Market. (September,2025). *Vaccines Market Size, Growth, Share & Trends Analysis*. <https://www.marketsandmarkets.com/Market-Reports/vaccine-technologies-market-1155.html>

McKinsey Digital. (2023). *Technology Trends Outlook 2023.* <https://www.mckinsey.com/~/media/mckinsey/business%20functions/mckinsey%20digital/our%20insights/mckinsey%20technology%20trends%20outlook%202023/mckinsey-technology-trends-outlook-2023-v5.pdf>

Microtrends. (2025). *CGI Operating Expenses 2010-2025 | GIB*. <https://www.macrotrends.net/stocks/charts/GIB/cgi/operating-expenses>

Morningstar. (2023). CGI Inc Class A GIB. <https://global.morningstar.com/en-ca/investments/stocks/0P000000YA/quote?exchange=XNYS&ticker=GIB>

Opentext. (2024). Corporate Citizenship Report and Privacy. <https://www.opentext.com/assets/documents/en-US/pdf/opentext-fy24-corporate-citizenship-report-en.pdf>?

Opentext. (2025). Limitless with AI. <https://www.opentext.com/limitless?utm_campaign=FY26-Q1-GL-EIM-GC-Limitless-PPCTX-pd-gg-tx&utm_source=google-text&utm_medium=cpc&utm_content=ebook&gad_source=1&gad_campaignid=22767942667&gbraid=0AAAAADLo5JP3uuJmXQKyZnI5ZHhUbUP3o&gclid=CjwKCAjw_fnFBhB0EiwAH_MfZltN-LLwREzZqyXLo9va-41X7f8w_gz2iE4xzls4I7JRxDP0dyjJIBoCzaMQAvD_BwE>

Opentext. (2025, June 30). *OpenText Reports Fourth Quarter and Fiscal Year 2025 Financial Results.* <https://www.opentext.com/about/press-releases/opentext-reports-fourth-quarter-and-fiscal-year-2025-financial-results>

Opentext. (2025). *OpenText: Information reimagined.* <https://www.opentext.com/about>

PR Newswire. (2025, Jan 29*). CGI enters into an agreement for the acquisition of BJSS, a leading UK technology and engineering consultancy*. <https://www.prnewswire.com/news-releases/cgi-enters-into-an-agreement-for-the-acquisition-of-bjss-a-leading-uk-technology-and-engineering-consultancy-302362882.html>

Planview. (2025, January 14th). CGI Leveraged Planview Hub to Support End-to-End Efficiency and Improve Client Satisfaction. <https://www.planview.com/resources/case-study/cgi/>

PWC. (2025a). Next in health services 2025: Secure your future with resilience and reinvention. <https://www.pwc.com/us/en/industries/health-industries/library/future-of-health.html>

PWC. (2025b). *From breaking point to breakthrough: the $1 trillion opportunity to reinvent healthcare*. <https://www.pwc.com/us/en/industries/health-industries/library/future-of-health.html>

Seeking Alpha. (2025, July 24). CGI Q3 Preview: U.S. Federal Exposure Is a Huge Risk, Initiate With Sell Rating. <https://seekingalpha.com/article/4804218-cgi-q3-preview-us-federal-exposure-is-a-huge-risk-initiate-with-sell-rating>

Stock Analysis. (2025a). *CGI Inc. (GIB)*. <https://stockanalysis.com/stocks/gib/statistics/>

Stock analysis. (2025b). *CGI Inc. Revenue*. <https://stockanalysis.com/stocks/gib/revenue/>

Shopify. (2025a). *Global Ecommerce Statistics: Trends to Guide Your Store in 2025.* <https://www.shopify.com/enterprise/blog/global-ecommerce-statistics?utm_source=chatgpt.com>

Shopify. (2025b). *Shopify creates the best commerce tools for anyone, anywhere, to start and grow a business*. <https://www.shopify.com/news/about-us>

Shopify. (2025c). *Making commerce better for everyone.* <https://shopifyinvestors.com/home/default.aspx>

Singh, S. (2025, July 22). Shopify Statistics 2025: Users, Stores & Revenue. *Demandsage*. <https://www.demandsage.com/shopify-statistics/#:~:text=Shopify%20has%20over%204.82%20million,customer%20base%20surpassing%20875%20million>.

TBR Insight Center. (2025, August 7). *Well-placed Investments in Emerging Tech Will Enable CGI to Accelerate Growth Long Term*. <https://tbri.com/special-reports/well-placed-investments-in-emerging-tech-will-enable-cgi-to-accelerate-growth-long-term/>

Tipranks. (2025, August 9). Constellation Software Reports Q2 2025 Results with Revenue Growth Amid Profit Decline. *The Globe and Mail*. <https://www.theglobeandmail.com/investing/markets/stocks/CNSWF/pressreleases/34032558/constellation-software-reports-q2-2025-results-with-revenue-growth-amid-profit-decline/>

UMBREX. (n.d.) *Profile of CGI Inc.* <https://umbrex.com/resources/profiles-of-the-top-consulting-firms/overview-profile-and-history-of-cgi-inc/>

Wikipedia. (2025, July 11). *CGI Inc*. <https://en.wikipedia.org/wiki/CGI_Inc.>

World Template Online. (2025). *Free Request for Information (RFI) Templates – Excel, Word.* <https://www.wordtemplatesonline.net/request-for-information-rfi-free-templates/#google_vignette>

Ysnel, H. (2024, October 28). Driving more strategic IT governance, risk and compliance across the enterprise. *CGI Inc*. <https://www.cgi.com/en/blog/business-consulting/cyber-risk-advisory/driving-more-strategic-it-governance-risk-compliance-across-enterprise>

A white and gold logo

Description automatically generated

**Conestoga College**

**Information Technology Business Analysis**

**Capstone Project**

**Fall 2025, ITBA**