# Crafting Effective Prompts for Quantitative Data Retrieval in Hypothetical Scenario Analysis

**Introduction: The Quest for Firm Numbers via Hypothetical Scenarios**

The practice of using hypothetical scenarios to anticipate future outcomes or understand potential impacts is a cornerstone of strategic planning and research. However, the true utility of such scenarios is unlocked when they are grounded in concrete, quantitative data—often referred to as "firm numbers." These numbers, encompassing statistics, financial figures, market metrics, and other numerical indicators, provide the empirical backbone necessary for robust analysis and informed decision-making. The primary challenge, then, lies in effectively bridging the gap between a conceptual scenario and the vast landscape of available data to extract these specific numerical insights.

This report addresses this challenge by providing a comprehensive guide to developing well-crafted research prompts. A meticulously formulated prompt serves as more than a simple question; it is a precise instrument designed to direct a research assistant, whether human or artificial intelligence (AI), toward the discovery of relevant and reliable quantitative data. Businesses and researchers frequently need to evaluate situations that are yet to materialize. Hypothetical scenarios offer a structured approach for this exploration, but their analytical power is significantly amplified when supported by empirical evidence. The journey from a nascent hypothetical idea to actionable, number-backed insights hinges on the ability to ask the right questions in the right way. This document will systematically guide the reader through this process, covering the foundational principles of quantitative data requests, the art of translating abstract scenarios into searchable queries, the architecture of high-yield prompts, and the crucial considerations of data quality and reliability.

**I. Core Principles for Prompts Seeking Quantitative Data**

The successful retrieval of numerical data through research prompts begins with an adherence to fundamental principles. These principles ensure that requests are understood, accurately processed, and yield information that is both relevant and usable for the analysis of hypothetical scenarios. Without this foundational rigor, prompts are likely to result in vague, misaligned, or ultimately unhelpful data.

* **A. Achieving Clarity, Focus, and Conciseness in Your Request**  
  The efficacy of a research prompt is significantly determined by its clarity, focus, and conciseness. These three attributes are paramount for ensuring that the request for quantitative data is understood and acted upon effectively.  
  **Clarity** dictates that the prompt must be unambiguous, allowing the purpose of the request to be immediately apparent without requiring additional explanation or interpretation.1 Any terms that could be misconstrued, or jargon specific to a narrow field, should be either avoided or explicitly defined within the prompt itself.2 For instance, a vague request for "economic impact" should be refined to specify a measurable outcome, such as "change in regional Gross Domestic Product (GDP) in percentage points over a defined period."  
  **Focus** requires that the prompt be specific and sufficiently narrow in scope to be answerable with concrete, findable data.1 A broad query, such as "What are the financial implications of widespread remote work adoption?" is too expansive to yield precise quantitative answers. A more focused prompt would target specific variables and contexts: "What is the average percentage change in commercial real estate operational costs (e.g., utilities, maintenance) for mid-sized technology companies (100-500 employees) in major North American metropolitan areas (e.g., New York, San Francisco, Toronto) that transitioned to a hybrid work model (at least 50% of workforce remote) between 2022 and 2023, compared to pre-pandemic levels (2019)?" This level of specificity defines the scope and guides the search toward relevant datasets.3  
  **Conciseness** demands that prompts convey the request using the fewest possible words while maintaining accuracy and completeness.1 Superfluous descriptors or "fluff" should be eliminated to reduce the likelihood of misinterpretation and to ensure the core request is prominent.1 For example, instead of "Could you please try to find some numbers that might indicate how different kinds of books, perhaps of varying genres, could potentially influence how well a person does on a test that is designed to measure their familiarity with and knowledge of a wide range of different words?", a concise version would be: "How does exposure to diverse literary genres (e.g., fiction, non-fiction, poetry) during formative years (ages 12-18) correlate with vocabulary size scores on standardized language assessments (e.g., SAT, GRE verbal sections) in young adults (ages 18-25)?"  
  These attributes—clarity, focus, and conciseness—are not merely stylistic preferences; they are functional necessities for effective data retrieval. They are also deeply interconnected. A concerted effort to make a prompt more concise often forces a refinement of its focus, which in turn enhances its clarity. As extraneous language is stripped away, any underlying ambiguities or overly broad elements tend to become more apparent, prompting further refinement. This iterative process of tightening the language can significantly improve the overall quality of the prompt.  
  Furthermore, a prompt characterized by these qualities reduces the cognitive burden on the entity tasked with fulfilling the request, be it a human researcher or an AI system. A straightforward, unambiguous prompt requires less interpretive effort, leading to quicker processing and a higher probability of retrieving data that accurately matches the user's intent.4 This efficiency is particularly vital when interacting with AI-driven research tools, where ambiguity can lead to irrelevant outputs or "hallucinated" data. Therefore, mastering these principles is a critical first step in optimizing the research process and maximizing the utility of the quantitative data obtained.
* **B. Ensuring Measurability: Defining What "Firm Numbers" You Need**  
  The pursuit of "firm numbers" inherently requires that the data sought be quantifiable and measurable. A research prompt must clearly specify variables that can be expressed numerically.3 Abstract concepts, while potentially relevant to the hypothetical scenario, need to be operationalized into measurable indicators. For example, instead of asking about "enhanced brand reputation," a prompt should seek quantifiable metrics such as "year-over-year percentage change in positive media mentions," "customer sentiment scores derived from social media analysis (e.g., on a scale of -1 to +1)," or "Net Promoter Score (NPS) among target demographics."  
  The emphasis on measurability extends beyond simply obtaining numerical values; it is about acquiring *meaningful and comparable* numbers. The prompt should guide the research towards data that can be effectively used for analysis, comparison, or modeling within the specific context of the hypothetical scenario being investigated. If a scenario involves evaluating the relative efficiency of two different manufacturing processes, a prompt asking for "general efficiency numbers" is insufficient. A more effective prompt would request specific, measurable, and comparable metrics such as "average processing time per unit (in minutes)," "energy consumption per unit (in kWh)," and "defect rate per thousand units manufactured." Such specificity allows for a quantitative assessment and direct comparison within the framework of the scenario.  
  Defining measurable variables within the prompt also implicitly suggests the required structure of the data. For instance, a request for "the relationship between marketing expenditure (in USD) and new customer acquisition (count of new customers) on a quarterly basis for direct-to-consumer e-commerce companies in the apparel sector in Europe over the past three fiscal years" does not merely ask for two independent sets of numbers. It implies a need for paired data points where marketing spend and customer acquisition figures are linked for each company, for each specified quarter. This level of detail pre-defines the necessary data structure for the research tool, facilitating the retrieval of data suitable for correlation or regression analysis.  
  Failure to clearly define measurability can lead to the collection of "vanity metrics"—numbers that are quantitative but offer little substantive insight or practical utility for the hypothetical scenario under examination. For example, "number of website visits" might be a measurable statistic, but if the scenario concerns "conversion of website traffic into paying subscribers," then metrics like "visitor-to-trial conversion rate (%)" or "trial-to-paid subscription conversion rate (%)" are far more relevant and actionable. The prompt must therefore be constructed to elicit these more precise and meaningful measures.

**II. Translating Hypothetical Scenarios into Searchable Queries**

The effective retrieval of quantitative data hinges on the ability to translate a conceptual hypothetical scenario into a precise, searchable query. This translation process requires a methodical deconstruction of the scenario to identify its core components and quantify its parameters.

* **A. Deconstructing Your Scenario: Identifying Key Variables, Assumptions, and Scope**  
  Before any research prompt can be formulated, the hypothetical scenario itself must undergo a thorough deconstruction. This analytical step involves dissecting the scenario into its fundamental elements to ensure that the subsequent data search is targeted and relevant.  
  First, **key drivers or variables** must be identified. These are the critical factors that define the scenario and whose impact or associated metrics need to be quantified.6 Such variables can encompass a wide range of influences, including prevailing market conditions (e.g., inflation rates, consumer confidence), specific competitor actions (e.g., new product launches, aggressive pricing strategies), internal organizational decisions (e.g., adoption of new technology, restructuring efforts), or broad technological shifts (e.g., advancements in AI, proliferation of IoT devices).  
  Second, **critical uncertainties and underlying assumptions** must be explicitly articulated.6 Every hypothetical scenario is built upon a set of assumptions about how certain variables will behave or how conditions will unfold. For instance, a scenario exploring a new market entry might assume "a stable regulatory environment" or "an average customer adoption rate of X% in the first year." Stating these assumptions clearly is vital because the relevance of any data found will depend on its consistency with these foundational premises. Critical uncertainties are those factors whose outcomes are unknown but will significantly influence the scenario's results.  
  Third, the **scope** of the scenario needs to be clearly established. This involves defining the boundaries of the investigation, such as the specific industry sector (e.g., renewable energy, enterprise software), geographic region (e.g., Southeast Asia, Eurozone), timeframe (e.g., the next five years, the period 2025-2030), and the scale or type of entities involved (e.g., small and medium-sized enterprises, multinational corporations).  
  This process of deconstruction can be viewed as building a simplified conceptual model of the situation. The identified variables act as the inputs or drivers of this model, the assumptions define its operational parameters, and the "firm numbers" being sought represent either the potential outputs of this model or real-world benchmarks that can inform it. For example, if the scenario is "What if our company launches Product X into Market Y?", the key variables might include Product X's features and price point, Market Y's demographic profile and existing competitive landscape. Assumptions could involve the marketing budget allocated, the anticipated market penetration rate, or the expected response from competitors. The "firm numbers" needed to analyze this scenario could then include the current market size for similar products in Market Y, sales figures of competing products, average customer acquisition costs in that market, and consumer spending patterns relevant to Product X.  
  The thoroughness of this deconstruction phase is critical. A failure to clearly define any single element—be it a key variable, an underlying assumption, or the overall scope—can create a ripple effect, negatively impacting the entire data retrieval and subsequent analysis process. If, for instance, the geographical scope of a market entry scenario (e.g., "Europe" versus "the German-speaking DACH region") remains ambiguous, any data retrieved for "market size" will be inherently imprecise and potentially misleading for the specific decision at hand. Similarly, if an implicit assumption, such as "no significant change in current supply chain stability," is not explicitly stated, data found might be irrelevant if it originates from a period characterized by major supply chain disruptions. This underscores the interconnectedness of the scenario's components and the importance of their precise definition. Ultimately, this detailed deconstruction is the intellectual groundwork that significantly simplifies the task of crafting effective prompts and dramatically increases the relevance of the data ultimately obtained.
* **B. Quantifying Scenario Parameters to Pinpoint Relevant Data**  
  Once a hypothetical scenario has been deconstructed into its core components, the next crucial step is to move from qualitative descriptions to quantitatively defined parameters. This involves assigning specific numerical values, ranges, or percentage changes to the key variables and assumptions identified earlier.6 This quantification is essential for transforming an abstract scenario into a framework that can be informed by concrete data.  
  For example, instead of a scenario based on "a significant increase in raw material costs," a quantified version would specify "a scenario where the average cost of key raw materials (e.g., steel, copper, lithium) increases by 15-20% over the next 12 months due to geopolitical factors and sustained global demand." Similarly, a vague notion of "improved employee productivity due to a new training program" becomes more data-friendly when framed as "a scenario assessing the impact of a $50,000 investment in a targeted skills development program, assuming a 5-8% increase in output per employee within six months of program completion."  
  The act of assigning these numerical values serves several important functions. Firstly, quantified parameters act as powerful filters in the data search process. A general query about "the effects of interest rate changes" is far less effective than a query seeking data related to "the impact on small business loan applications and investment following a central bank interest rate hike of 75 basis points within a three-month period." The latter allows for a more targeted search for historical data or economic models that correspond to such specific conditions. If a scenario involves a "major supply chain disruption," the data search remains broad and potentially unfruitful. However, if the scenario specifies "a 40% reduction in semiconductor availability from East Asian suppliers lasting for two fiscal quarters," the search can be narrowed to find data related to past disruptions of similar magnitude and origin, or to identify economic models that utilize such precise parameters.  
  Secondly, quantification facilitates "like-for-like" comparisons and the identification of analogous situations. When seeking to understand the potential consequences of a hypothetical event, researchers often look for data from similar past occurrences or from comparable entities. For instance, to assess the likely market response to a hypothetical 10% price increase for a specific software product, one might search for case studies or market data where similar software products underwent price increases in the 8-12% range. Without this initial quantification of the scenario's price change, it becomes difficult to determine whether a retrieved case study detailing, for example, a 50% price increase is genuinely comparable or relevant for drawing inferences.  
  The more precisely the parameters of a hypothetical scenario are quantified, the greater the likelihood of discovering "firm numbers" that are directly applicable or can be used to make well-grounded estimations. This precision transforms the scenario from a general "what if" question into a structured problem that can be investigated using empirical data. This process is fundamental to using existing data to inform projections for new product launches or market expansions, where variables such as conversion rates, customer acquisition costs, or market penetration rates must be estimated based on available benchmarks, adjusted for the specifics of the scenario.7
* **C. Illustrative Examples: From Vague Idea to Data-Ready Scenario Definition**  
  To further clarify the transformation from an abstract concept to a data-ready scenario, consider the following examples:
  + **Example 1: Market Entry Strategy**
    - **Vague Idea:** "What if our company expands its software sales into the Asian market?"
    - **Data-Ready Scenario Definition:** "Scenario: Our company, a North American B2B SaaS provider specializing in project management software for mid-sized construction firms (current annual recurring revenue (ARR) $15 million USD), is considering entry into the Singaporean and Malaysian markets in Q1 2026. The product will be localized and priced at an equivalent of $75 USD per user/month.
      * **Key Assumptions:** Initial marketing and sales budget of $750,000 USD for the first year, targeting a 0.5% market share of addressable construction firms by end of year two. Local sales team of 3-4 representatives to be hired.
      * **Critical Uncertainties:** Actual customer acquisition cost (target < $600 USD per firm), intensity of competition from established local and international players, and the rate of adoption of cloud-based project management tools in these specific markets.
      * **Firm Numbers Needed:** Market size for construction project management software in Singapore and Malaysia (value and volume), current market share of key competitors, average customer acquisition cost for B2B SaaS in these markets, typical sales cycles, and statistics on digital transformation adoption rates within the construction industry in these countries."
  + **Example 2: Impact of New Regulatory Policy**
    - **Vague Idea:** "How will new data privacy laws affect our online retail business?"
    - **Data-Ready Scenario Definition:** "Scenario: Our e-commerce company, specializing in direct-to-consumer apparel in the European Union (annual online sales €25 million), must comply with a new, stricter data privacy regulation (hypothetically similar to GDPR but with enhanced consent requirements for targeted advertising) effective January 1, 2025.
      * **Key Assumptions:** An estimated 20% increase in compliance-related operational costs (e.g., legal consultation, software updates, staff training) amounting to €150,000 in the first year. A potential 10-15% reduction in the effectiveness of personalized advertising campaigns due to stricter consent rules.
      * **Critical Uncertainties:** The actual impact on customer conversion rates if personalized advertising is reduced, the percentage of customers who will opt out of data sharing under the new rules, and the cost of alternative marketing strategies.
      * **Firm Numbers Needed:** Statistics from regions/companies that have implemented similar data privacy changes, specifically: reported changes in online advertising ROI, average percentage decrease in opt-in rates for marketing communications, data on shifts in marketing budget allocation (e.g., from targeted ads to content marketing or influencer collaborations), and case studies on customer response to enhanced privacy measures."

The process of developing such data-ready scenarios is often iterative. An initial attempt to refine a vague idea might still lack sufficient detail, necessitating further questioning and quantification. For instance, the "market entry" idea might first become "What if we enter Singapore with our software?" This is an improvement, but it still lacks specifics about the company's profile, product pricing, budget allocations, and the precise nature of the uncertainties. Each iteration adds layers of specificity that are crucial for identifying and retrieving relevant quantitative data.This detailed definition process also inherently clarifies *what specific types* of firm numbers are required. In the "Market Entry" example, the data-ready scenario immediately highlights the need for data on Singaporean/Malaysian CRM market size, competitor pricing structures, average B2B SaaS customer acquisition costs in that region, and so on. This pre-identification of necessary data categories flows directly into the subsequent construction of targeted research prompts.To ensure a scenario is adequately prepared for data-driven investigation, the following checklist can be applied:**Table: Checklist for Defining a "Data-Ready" Hypothetical Scenario**

| **Criterion** | **Description** | **Importance for Data Retrieval** |
| --- | --- | --- |
| **Clear Objective/Question** | Is the central question or purpose of the scenario analysis unambiguous? | Ensures the data search is aligned with the overarching goal. |
| **Identified Key Variables** | Are all critical influencing factors (internal, external, market-related, etc.) explicitly listed? | Directs the search towards data related to these specific drivers. |
| **Quantified Variables/Parameters** | Are these variables assigned specific values, ranges, percentages, or clear qualitative states? | Allows for searching for data related to specific magnitudes of change or specific conditions. |
| **Explicit Assumptions** | Are the underlying assumptions (e.g., about market stability, resource availability, competitor behavior) stated? | Helps assess the applicability of found data; data based on different assumptions may be less relevant. |
| **Defined Scope** | Is the context (industry, geography, timeframe, scale of operation, target population) clearly delineated? | Narrows the search space, preventing retrieval of overly broad or irrelevant data. |
| **Acknowledged Critical Uncertainties** | Are the major unpredictable elements that could affect outcomes identified? | May guide searches for data on risk factors, probabilities, or outcomes under varying conditions of these uncertainties. |
| **Identifiable "Firm Numbers"** | Does the scenario definition naturally lead to a list of specific quantitative data points needed for analysis? | This is the direct link to prompt formulation; if specific numbers can't be identified, the scenario needs more refinement. |

By systematically addressing each point in this checklist, a researcher can transform an abstract hypothetical notion into a robust framework ready to support a targeted and effective search for quantitative data. This structured approach is fundamental to successfully obtaining the "firm numbers" necessary to inform the scenario.

**III. Architecting High-Yield Research Prompts**

Once a hypothetical scenario has been meticulously deconstructed and its parameters quantified, the next step is to translate this well-defined scenario into an effective research prompt. The architecture of the prompt itself is critical for eliciting the desired "firm numbers." This involves understanding the essential structural components of a good prompt and how to explicitly request the specific data types, units, sources, and time periods relevant to the scenario.

* **A. Essential Structural Components of an Effective Prompt**  
  A well-structured research prompt acts as a clear set of instructions, guiding the research entity—whether a human assistant or an AI tool—towards the desired information. Drawing from best practices, particularly in the context of AI-driven research, several components are key to constructing prompts that yield high-quality quantitative data.4
  1. **Persona/Role (Optional but Recommended):** Instructing the research tool to adopt a specific expert persona can significantly tailor the style, focus, and depth of the response. For example: "Act as a senior market research analyst specializing in the renewable energy sector..." or "Assume the role of a financial analyst with expertise in evaluating early-stage technology investments..." This helps align the output with the expected level of analysis and domain knowledge.4
  2. **Context:** Providing essential background information is crucial. This includes details about the hypothetical scenario, the user's organization or industry, the overarching research objective, or any specific constraints.4 Context helps the research tool understand the *reason* behind the request, leading to more relevant and nuanced findings. For instance: "Our company is a mid-sized pharmaceutical firm exploring the feasibility of repurposing an existing drug (Drug X) for a new indication (Condition Y). The hypothetical scenario involves estimating the potential market size if Phase III clinical trials are successful."
  3. **Task/Objective:** The prompt must clearly and unambiguously state what the research tool is expected to *do*. This is often best achieved using precise, directive verbs.4 Examples include: "Find statistics on...", "Identify key financial metrics for...", "Compare reported growth rates of...", "Analyze trends in...", "Provide a dataset showing..." A clear objective ensures the output directly addresses the core information need.
  4. **Data Specification:** This is a critical component for quantitative requests and will be detailed further in section III.B. It involves explicitly defining the types of numbers, units of measurement, preferred or required sources, and relevant time periods.
  5. **Format:** Specifying the desired output format ensures that the retrieved information is presented in a way that is easy to interpret and utilize.4 Options include: "Provide the data in a table with columns for [Variable 1], [Variable 2], and," "List the key figures as bullet points, each with a corresponding citation," "Summarize the findings in a concise paragraph, referencing specific data points and their sources," or "Generate a time-series dataset in CSV format."
  6. **Exemplars (Optional):** Supplying examples of the type of data, analysis, or output format desired can significantly enhance the quality and relevance of the response.4 For instance: "For market share data, an example of the desired output is: 'Company A: 25% (Source: XYZ Report, 2023), Company B: 18% (Source: ABC Analysis, 2023)'."
  7. **Tone (Optional):** While less critical for purely numerical data retrieval, specifying the desired tone (e.g., formal, neutral, objective, confident) can be useful if the prompt also requests interpretation or summary.4 For quantitative data, a neutral and objective tone is generally preferred.

Considering these components transforms prompt writing from an intuitive exercise into a systematic process. A comprehensive prompt functions like a detailed briefing document for a research assignment. Just as one would provide a human analyst with thorough instructions, a well-crafted prompt offers the same level of guidance to any research tool. This proactive inclusion of detail minimizes the need for subsequent clarifications or iterative prompting, which can be time-consuming, especially if the research tool asks follow-up questions to resolve ambiguities.11 For example, if the desired output format is not specified, the tool might return a lengthy narrative when a structured table was needed, necessitating a revised prompt and another processing cycle. By addressing these structural elements upfront, the research process becomes more efficient and the likelihood of obtaining the precise quantitative data required for the hypothetical scenario is substantially increased.The following table summarizes these core components, their importance for quantitative data retrieval, and illustrative examples:**Table: Core Components of a Research Prompt for Quantitative Data from Hypothetical Scenarios**

| **Component** | **Description** | **Importance for Quantitative Data Retrieval** | **Example Snippet in a Prompt** |
| --- | --- | --- | --- |
| **Persona (Role)** | Assigning an expert identity to the research tool. | Can refine search strategies towards specialized databases or interpret data with domain-specific nuance. | "Assume the role of an industry analyst specializing in global logistics and supply chain management." |
| **Context** | Background information about the scenario, user's needs, or industry. | Helps the tool understand the relevance of data and filter out information that is numerically correct but contextually inappropriate. | "For a hypothetical scenario where our e-commerce business (annual revenue $50M) expands into the Brazilian market, we need to assess..." |
| **Task/Objective** | Clear directive verbs stating what the tool should do. | Ensures the output directly addresses the information need, focusing on retrieval, comparison, or analysis of specific numbers. | "Identify and list the top 5 publicly traded competitors in the [specific sector] by market capitalization as of year-end 2023." "Provide statistics on..." |
| **Data Specification** | Detailed requirements for data types, units, sources, time periods. | Crucial for obtaining "firm numbers" that are precise, comparable, and directly usable for the scenario analysis. (Detailed in III.B) | "Report figures in millions of USD, for the period 2020-2023, sourced from official company financial statements or reputable financial data providers like Bloomberg or Refinitiv." |
| **Format** | Desired structure for the output (e.g., table, list, CSV). | Facilitates easier interpretation, comparison, and integration of the quantitative data into subsequent analyses or reports. | "Present the data in a table with columns for: Metric Name, Value, Unit, Year, Source." "Output the results as a comma-separated list." |
| **Exemplars** | Examples of the desired data or output. | Guides the tool towards the correct type and level of detail, reducing ambiguity and improving the accuracy of the results. | "For example, if reporting growth rates, use the format: 'CAGR (2019-2023): X.X%'. If reporting market size, 'Market Size (2023): $Y.Y Billion USD'." |
| **Tone** | Preferred style of communication in the response (if interpretation is requested). | For quantitative data, ensures objectivity. If a summary is requested, it can guide the level of formality. | "The summary of findings should be presented in a neutral and objective tone." |

* **B. Explicitly Requesting "Firm Numbers": Specifying Data Types, Units, Sources, and Time Periods**  
  The core of any prompt designed to retrieve quantitative data lies in its explicit specification of the "firm numbers" required. Vague requests yield vague results; precision is paramount. This involves clearly articulating several key dimensions of the data:
  1. **Data Types:** The prompt must specify the nature of the numerical information sought. This could include absolute figures (e.g., total revenue, number of employees), percentages (e.g., market share percentage, profit margin percentage), ratios (e.g., debt-to-equity ratio, current ratio), growth rates (e.g., compound annual growth rate (CAGR), year-over-year percentage change), averages (mean values), medians, or other statistical measures.9 For instance, instead of asking for "company performance," a prompt might request "the three-year average revenue growth rate and the median net profit margin for companies in X sector."
  2. **Units:** Ambiguity in units of measurement can render quantitative data entirely useless or, worse, misleading. The prompt must clearly state the required units, such as currency (e.g., USD, EUR, JPY, specifying if millions or billions), physical units (e.g., units sold, metric tons, barrels), personnel units (e.g., full-time equivalents (FTEs)), or statistical units (e.g., percentage points, basis points). For example: "Provide the production output in thousands of metric tons per annum."
  3. **Sources (Preferred or to be Cited):** The credibility of quantitative data is intrinsically linked to its source. The prompt can specify preferred types of sources, such as official government statistical agencies (e.g., Bureau of Labor Statistics, Eurostat), filings from regulatory bodies (e.g., SEC for financial data), reputable market research firms (e.g., Gartner, Forrester, Nielsen), peer-reviewed academic journals, or specific industry publications.12 At a minimum, the prompt should request that all data provided be accompanied by clear citations of the original sources. This allows the user to verify the information and assess its reliability. For example: "Cite all data points to their original source, preferably from industry reports published in the last two years or official company disclosures."
  4. **Time Periods:** The relevance of quantitative data is often highly dependent on its timeliness.14 The prompt must define the specific timeframe for which the data is required. This could be the "latest available fiscal year," a specific range of years (e.g., "data for each year from 2019 to 2023 inclusive"), a forecast period (e.g., "projected figures for the next 3-5 years"), or data as of a particular date (e.g., "market capitalization as of December 31, 2023").

This explicit detailing of data parameters functions as a powerful pre-filter, ensuring that the retrieved information is not merely numerical but also contextually relevant to the hypothetical scenario and analytically sound. For example, a general request for "company revenue data" is far too broad. A much more effective prompt would be: "Retrieve annual recurring revenue (ARR) figures, in millions of USD, for publicly traded B2B SaaS companies in North America with between 200 and 1000 employees, for each fiscal year from 2021 to 2023. Data should be sourced from official company financial reports (10-K filings) or reputable financial data aggregators like FactSet or S&P Capital IQ." This level of specificity systematically filters out irrelevant data (e.g., non-SaaS companies, businesses of a different size or in a different geography, revenue figures that are not recurring).Furthermore, clearly specifying units and data types can guide the research tool to find data at the appropriate level of aggregation or disaggregation needed for the scenario analysis. If a hypothetical scenario requires an analysis of regional sales performance, the prompt should explicitly ask for "sales data broken down by geographic region" rather than just "total global sales." If the scenario involves calculating per-unit manufacturing costs, this should be specified over total production costs. This foresight in prompt construction prevents the retrieval of data that is either too summarized or too granular for the intended analytical task, thereby saving significant time and effort in data processing. This level of explicitness is non-negotiable when the goal is to obtain reliable "firm numbers" for meaningful scenario-based research.

* **C. Guiding the Search: Using Keywords and Constraints Effectively**  
  Beyond specifying *what* data is needed, an effective research prompt can also provide guidance on *how* to find it. This involves the strategic use of keywords and constraints to refine the search process and improve the relevance of the results.  
  **Keywords:** The prompt can suggest relevant keywords, industry-specific terminology, names of key companies, products, technologies, or regulatory frameworks pertinent to the hypothetical scenario.8 This is particularly useful when the user possesses domain-specific knowledge that can help narrow the search. For instance, if researching the impact of a new pharmaceutical compound, including its scientific name or the specific biological pathway it targets as keywords can lead to more precise scientific and market data. A prompt example: "Search for statistics on adoption rates of 'robotic process automation (RPA)' and 'intelligent automation (IA)' solutions within the 'financial services' and 'insurance' sectors in Europe, focusing on data from 2020 onwards."  
  **Constraints:** Defining what to *exclude* from the search can be just as important as specifying what to include.9 Constraints help to filter out known irrelevant information or common sources of noise. Examples of constraints include: "Exclude data published before 2021," "Focus on B2B enterprise software solutions, not consumer applications," "Disregard anecdotal reports or blog posts; prioritize peer-reviewed studies or established market research firms," or "Limit results to companies with annual revenues exceeding $100 million USD."  
  **Prioritization:** If the prompt requests multiple distinct pieces of quantitative data, indicating their relative importance or a preferred order of retrieval can be beneficial, especially if the research tool has limitations or if time is a factor. For example: "Primarily, find data on X; secondarily, if available, provide figures for Y and Z."  
  The inclusion of relevant keywords and constraints effectively transfers some of the user's domain expertise to the research tool. A user researching a niche area, such as the market for specific types of sustainable building materials, will know the technical terms (e.g., "cross-laminated timber," "hempcrete," "mycelium-based insulation") and key industry certifications. Embedding these as keywords in a prompt like, "Find market size and growth projections (2024-2029) for 'cross-laminated timber (CLT)' in the North American construction market, citing sources that discuss its use in multi-story residential buildings and its 'LEED certification' impact," will yield far more targeted results than a generic query about "eco-friendly building materials."  
  Constraints also serve as a form of proactive error prevention. If previous, broader searches for a term like "customer acquisition cost" have yielded a large volume of irrelevant B2C data when the scenario specifically concerns B2B contexts, adding a constraint such as "Exclude B2C marketing data" or "Focus specifically on B2B customer acquisition cost benchmarks for SaaS companies" will proactively refine the search and improve the signal-to-noise ratio in the retrieved data. This saves considerable time and effort that would otherwise be spent on manually filtering out irrelevant results. The strategic application of keywords and constraints thus fine-tunes the search mechanism, making the data acquisition process more efficient and significantly increasing the likelihood of obtaining precisely the "firm numbers" needed for the hypothetical scenario.

**IV. Crafting Prompts: Practical Examples and Templates**

This section provides adaptable templates and concrete examples of research prompts tailored to retrieve common types of quantitative data essential for analyzing hypothetical business scenarios. These templates illustrate how to combine the principles of clarity, specificity, and structural components discussed earlier.

* **A. Prompts for Market Analysis Data**  
  Market analysis data is fundamental for scenarios involving new product launches, market entry, competitive positioning, or understanding evolving customer preferences.
  + **Scenario Example:** A beverage company is considering launching a new line of functional drinks enriched with nootropics, targeting health-conscious millennials and Gen Z consumers.
  + **Prompt Template:**  
    Persona: Act as a market research analyst specializing in the functional beverage industry.  
    Context: Our company is evaluating the launch of a new nootropic-enriched functional drink line in targeting consumers aged 18-35. The hypothetical scenario assumes a premium pricing strategy (e.g., '20% above average energy drink prices') and significant digital marketing investment.  
    Task: Research and provide firm numbers on the following for the:  
    Data Specification:  
    1. Current total market size (in) for functional beverages in for the latest available year (e.g., '2023 or 2024'), and its projected Compound Annual Growth Rate (CAGR) for the next [X] years (e.g., '3-5 years'). Cite sources (e.g., 'market research reports from firms like Mintel, Euromonitor, or Statista').  
    2. Market share (as a percentage of value or volume) of existing nootropic-containing beverage brands in for.  
    3. Statistics on consumer willingness to pay a premium for beverages with cognitive enhancement benefits among the 18-35 age demographic in (e.g., 'percentage of consumers willing to pay X% more,' 'average acceptable price point').  
    4. Reported sales figures or estimated annual revenue (in) for the top 3-5 key competitors in the nootropic beverage segment in for the most recent fiscal year.  
    5. Data on preferred distribution channels (e.g., 'percentage of sales via online, specialty health stores, supermarkets') for similar functional beverages.  
    Format: Present data in a structured list or table, with clear citations for each data point.

This type of prompt effectively connects the variables of the hypothetical scenario (new product, target demographic, pricing strategy) to specific, standard market research metrics such as market size, growth rates, competitor shares, and consumer price sensitivity.8 By requesting multiple layers of related market data—from the broad market size down to specific segment behaviors (e.g., willingness to pay a premium 17) and competitor performance—the prompt aims to provide a holistic view. This structured approach helps in assessing the viability and potential of the hypothetical product launch.

* **B. Prompts for Financial Projections/Impacts**  
  Scenarios involving cost changes, revenue forecasts, return on investment (ROI) calculations, or profitability analysis under hypothetical conditions require specific financial data and benchmarks.
  + **Scenario Example:** A retail chain is considering implementing an AI-powered inventory management system across its 100 stores to reduce stockouts and minimize holding costs.
  + **Prompt Template:**  
    Persona: Act as a financial analyst with expertise in retail operations and technology adoption.  
    Context: A retail chain with 100 stores (average annual revenue per store:) is hypothetically investing in an AI-powered inventory management system. The goal is to reduce inventory holding costs and improve stock availability.  
    Task: Research and provide firm numbers or statistical benchmarks relevant to the financial impact of such an implementation:  
    Data Specification:  
    1. Average reduction in inventory holding costs (expressed as a) reported by retail companies after implementing AI-based inventory management. Cite industry reports or case studies.  
    2. Typical impact on stockout rates (e.g., 'average percentage point decrease in stockouts') and the corresponding estimated lift in sales revenue (e.g., 'percentage increase in sales due to improved availability').  
    3. Reported ROI timeframe (e.g., 'average number of months or years to achieve payback') for comparable AI inventory system investments in the retail sector (specify if possible for similar-sized chains).  
    4. Data on changes in inventory turnover ratios (e.g., 'average increase in turns per year') post-implementation.  
    5. Quantifiable examples of efficiency gains, such as 'reduction in hours spent on manual inventory counts' or 'savings from reduced spoilage/obsolescence.'  
    Format: Provide findings as a bulleted list, with specific figures, units, and source citations for each benchmark. Where ranges are reported, please provide them.

Prompts for financial impact often need to request data on *changes* (deltas) or *ratios* rather than just absolute numbers, as these are more indicative of the scenario's effect.7 For instance, knowing the "average reduction in holding costs" is more directly useful for the scenario than knowing the "average holding cost" in general. Since the scenario is hypothetical, such prompts must frequently ask for data from *similar past situations* or *industry benchmarks* to provide a credible basis for the company's own projections.6 The aim is to find analogous data that can serve as a robust input for financial modeling.

* **C. Prompts for Operational Metrics in Hypothetical Contexts**  
  Hypothetical scenarios often involve changes that affect operational efficiency, productivity, supply chain performance, or service delivery quality.
  + **Scenario Example:** A customer service department is considering adopting a new AI chatbot to handle 50% of tier-1 customer inquiries.
  + **Prompt Template:**  
    Persona: Act as an operations analyst specializing in customer service technologies.  
    Context: A customer service department currently handling is hypothetically implementing an AI chatbot solution intended to manage 50% of these inquiries.  
    Task: Research and provide firm numbers on the operational impact observed in similar AI chatbot implementations in customer service:  
    Data Specification:  
    1. Average percentage reduction in human agent time spent on tier-1 inquiries.  
    2. Typical change in First Contact Resolution (FCR) rates for inquiries handled by AI chatbots versus human agents.  
    3. Data on average handling time (AHT) for inquiries resolved by AI chatbots compared to human agents for similar types of issues.  
    4. Reported impact on customer satisfaction scores (CSAT) or Net Promoter Scores (NPS) specifically related to interactions with AI chatbots for tier-1 support. Cite studies that differentiate between chatbot and human agent satisfaction.  
    5. Statistics on chatbot accuracy or escalation rates (i.e., percentage of chatbot interactions requiring human agent intervention).  
    Format: Compile the data into a comparative table if possible, showing metrics for AI chatbot versus human agent performance, with sources cited.

While prompts may target specific operational metrics (e.g., "average handling time" 17), the underlying objective is often to understand their cascading effects on broader business outcomes such as cost reduction (fewer agent hours), improved customer experience (faster resolution), or increased capacity. The selection of operational metrics in the prompt should therefore reflect these connections. Furthermore, operational improvements are highly context-dependent. The prompt should guide the search towards benchmarks from similar industries (e.g., "e-commerce customer service," "financial services support"), company sizes, or operational environments to ensure the relevance of the retrieved data.18

**V. Enhancing Data Utility: Prompts for Quality and Reliability Assessment**

Securing quantitative data is a significant step, but its utility is contingent upon its quality and reliability. It is therefore essential to integrate mechanisms for assessing these aspects directly into the research prompting process. This proactive approach ensures that the "firm numbers" obtained are not only relevant but also trustworthy.

* **A. Building in Checks: Prompting for Data Source Details and Collection Methodology**  
  A well-designed research prompt should not only ask *for* data but also for critical information *about* the data. This metadata is indispensable for evaluating the credibility of the findings. Key requests to include in prompts are:
  1. **Source Identification:** A fundamental requirement is to ask for the origin of any data provided. For example: "For each statistic presented, cite the primary source (e.g., report title, publishing organization, and publication date)".12
  2. **Collector Credentials/Expertise:** Understanding who gathered the data can provide insights into its potential biases or rigor. A prompt might include: "If available, provide information on the organization or individual responsible for data collection and their recognized expertise or affiliation in this specific domain".12
  3. **Collection Methodology:** The method used to collect data significantly impacts its validity and reliability. Prompts should request these details: "Describe the methodology employed to collect this data (e.g., randomized controlled trial, longitudinal survey, analysis of publicly reported financial statements, expert panel consensus, meta-analysis of existing studies)".14
  4. **Date of Collection/Publication:** Timeliness is a key aspect of data quality.14 The prompt should specify: "Clearly state the date or period of data collection and the date of publication for each data point."
  5. **Sample Size and Response Rate (if applicable for survey data):** For data derived from surveys, these metrics are crucial indicators of representativeness and potential non-response bias. Request: "For any survey-based data, provide the total sample size, the characteristics of the sample population, and the survey's response rate".12

By incorporating these requests, the user is empowered to make an informed judgment regarding the data's reliability and its appropriateness for the hypothetical scenario under investigation. For instance, if a prompt returns a compelling statistic on projected market growth but also reveals that the source is an unverified personal blog with no stated methodology, the user can appropriately assign a lower level of confidence to that data point. Without prompting for this crucial metadata, the user might unknowingly base important decisions on data of dubious quality.Including these requests in the initial prompt can also subtly guide the research tool, particularly AI-powered ones, towards higher-quality sources from the outset. An AI tasked with finding not only a statistic but also its detailed methodology and source credentials might inherently prioritize information from more reputable and transparent origins, as these are more likely to provide such comprehensive details. This proactive approach to quality filtering is more efficient than sifting through numerous unsourced or poorly documented figures after retrieval. This practice fosters a critical approach to data evaluation, which is indispensable for sound decision-making based on scenario analysis.13

* **B. Addressing Potential for Data Gaps: Requesting Proxies or Synthesis (If direct numbers are unavailable)**  
  For highly novel, specific, or future-oriented hypothetical scenarios, directly corresponding "firm numbers" may simply not exist in readily available datasets. Effective research prompts can anticipate this common challenge by including provisions for alternative forms of quantitative insight.
  1. **Requesting Analogous or Proxy Data:** When direct data is elusive, information from the closest comparable situations can be highly valuable. The prompt can guide this by stating: "If precise data for [the specific parameters of the hypothetical scenario, e.g., 'the adoption rate of quantum computing in mid-sized logistics companies'] is unavailable, provide data for the most analogous situations or industries (e.g., 'adoption rates of previous transformative technologies like cloud computing or AI in similar firms,' or 'quantum computing adoption in related sectors like finance or research'). Clearly articulate the parallels drawn and any significant differences that might affect applicability." 7
  2. **Requesting Data Points for Synthesis:** Even if a single "firm number" for the scenario's outcome isn't available, various related data points might exist that, when combined, can support an estimation or model. The prompt can ask: "Provide key quantitative data points (e.g., [Metric A from Industry X],,) that could be used to synthesize an estimate of the potential market impact in [the defined hypothetical scenario]. Briefly explain the potential relevance of each data point for such a synthesis." 11
  3. **Asking for Model Inputs or Benchmarks:** For scenarios that might be analyzed using a quantitative model, the prompt can seek relevant inputs: "Identify and provide statistical inputs, established benchmarks, or parameter ranges (e.g., 'typical R&D cost for similar biotech drug development,' 'average market penetration timelines for novel medical devices,' 'price elasticity coefficients for comparable consumer electronics') that would be relevant for inclusion in a financial projection model or risk assessment model for [the hypothetical scenario]."

This approach acknowledges the reality that perfect, directly matching data is often a rarity in complex or forward-looking research. By prompting for proxies, data for synthesis, or model inputs, the user expands the potential avenues for gaining valuable quantitative insights.20 For example, if no direct data exists on "the market impact of a commercial asteroid mining venture," a prompt could request data on "the historical investment returns and failure rates of previous large-scale, high-risk, resource exploration ventures (e.g., deep-sea oil drilling, early space exploration initiatives)" and "current market prices and demand forecasts for platinum-group metals." While not a direct answer, these proxy data points offer valuable, quantifiable reference points for assessing the hypothetical venture.Furthermore, prompts that request data for synthesis effectively guide the research tool (or assist the human researcher) in the initial stages of inferential reasoning. They encourage the identification of disparate but relevant pieces of information and prompt consideration of how these pieces might logically fit together to inform the scenario. This moves the research task beyond simple data retrieval into the realm of analytical construction, making the process more resilient to data scarcity and fostering a more creative and robust approach to leveraging available information for scenario planning.

* **C. Avoiding Pitfalls: Designing Prompts to Minimize Ambiguity and Bias in Results**  
  The way a research prompt is phrased can inadvertently introduce biases or lead to ambiguous results, thereby compromising the quality and utility of the retrieved "firm numbers." Careful design is necessary to mitigate these risks.
  1. **Avoiding Leading Questions:** Prompts should be phrased neutrally to avoid suggesting a desired answer or outcome. A leading prompt such as, "Find data that conclusively demonstrates the significant positive impact of implementing a four-day work week on employee productivity..." is inherently biased. A more objective phrasing would be: "Find quantitative data on the observed impact of implementing a four-day work week on employee productivity metrics (e.g., output per employee, project completion rates) and employee satisfaction scores (e.g., survey results, retention rates), including studies that show positive, negative, or neutral effects.".2 This neutrality ensures a more balanced and comprehensive data retrieval.
  2. **Clarifying Ambiguous Terms:** All key terms and concepts within the prompt must be clearly defined, especially if they are open to multiple interpretations or are specific to the hypothetical scenario. For instance, if the scenario involves "improved sustainability," the prompt should specify what aspects of sustainability are of interest and how they might be measured (e.g., "reduction in Scope 1 and 2 carbon emissions in metric tons of CO2​ equivalent," "percentage increase in use of recycled materials," "water consumption per unit of production"). Lack of clarity can lead to the retrieval of data that, while related to the broad term, is not specific to the scenario's intent.2
  3. **Specifying Scope to Avoid Selection Bias:** The prompt must clearly define the target population, relevant timeframe, geographical context, and other scope parameters. Failure to do so can lead to selection bias, where the retrieved data, although accurate in itself, is not representative of the conditions pertinent to the hypothetical scenario.21 For example, if a scenario concerns small businesses in emerging markets, data drawn exclusively from large corporations in developed economies would likely be misleading, even if the metrics themselves (e.g., revenue growth) are correctly reported.
  4. **Considering Measurement Issues:** Researchers should be aware of potential inherent measurement issues in existing datasets, such as ceiling effects (where a high proportion of responses cluster at the maximum possible score, limiting differentiation) or floor effects.22 While a prompt cannot easily correct for flaws in how existing data was originally collected, it can sometimes guide towards data less prone to such issues by, for instance, requesting data that uses continuous scales rather than narrowly bracketed categories, or by asking for methodologies that are known to mitigate such effects. For sensitive topics, prompts can specify a search for studies that ensured anonymity to reduce social desirability bias, which can contribute to ceiling effects on "positive" behaviors.

The research prompt itself functions as an instrument for data collection; just as a poorly designed survey questionnaire can yield flawed data, so too can a poorly constructed prompt lead to skewed or biased data retrieval. A leading prompt, for example, essentially "primes" the research tool to seek out confirmatory evidence, potentially overlooking contradictory or nuanced findings. Users must also be introspective about their own potential biases. If a researcher has a preconceived notion about the likely outcome of a hypothetical scenario, they might unconsciously craft prompts that steer the search towards data confirming that bias, rather than seeking a balanced and objective set of information.Vigilance in prompt design to minimize ambiguity and bias is therefore critical for maintaining the objectivity and integrity of the data gathered. This, in turn, directly affects the credibility of any conclusions drawn from the subsequent analysis of the hypothetical scenario.The following table outlines common pitfalls in prompting for scenario-based quantitative data and suggests mitigation strategies:**Table: Common Pitfalls in Prompting for Scenario-Based Numbers & Mitigation Strategies**

| **Pitfall** | **Impact on Data Quality/Relevance** | **Prompt Design Mitigation Strategy** |
| --- | --- | --- |
| **Leading or Biased Phrasing** | Retrieves data skewed towards a preconceived outcome; misses contradictory or neutral evidence. | Use neutral, objective language. Frame requests to find data on effects/impacts generally, rather than specific positive/negative effects. Example: "Find data on the effects of X" not "Find data showing X is beneficial." 2 |
| **Undefined or Ambiguous Key Terms** | Results in irrelevant data or data that measures a different concept than intended. | Clearly define all critical terms and variables within the prompt, especially those specific to the scenario or industry. Provide operational definitions if necessary. 2 |
| **Unspecified or Inappropriate Scope** | Data retrieved is not representative of the scenario's context (e.g., wrong industry, time, geography). | Explicitly state all relevant scope parameters: industry, geographic region, timeframe, company size/type, target population, etc. 21 |
| **Requesting Non-Existent "Perfect" Data** | Leads to no useful data found, or frustration if expectations are for directly matching numbers. | Acknowledge potential data gaps. Instruct the prompt to seek proxies, analogous data, or data points for synthesis if direct numbers for the exact scenario are unavailable. 20 |
| **Ignoring Data Collection Methodology** | Risk of using data from unreliable or flawed collection methods without awareness. | Prompt for details on data collection methodology, source credibility, sample size, and date of collection. 12 |
| **Overly Complex or Multiple Questions in One Prompt** | Confuses the research tool, leading to incomplete or off-target answers. | Break down complex research needs into a series of more focused, individual prompts. Each prompt should ideally have one primary objective. 10 |

**VI. Conclusion: Systematically Developing Prompts for Scenario-Based Quantitative Research**

The endeavor to secure "firm numbers" for the analysis of hypothetical scenarios is a critical component of informed decision-making, strategic planning, and robust research. This report has delineated a systematic approach to crafting research prompts that effectively elicit such quantitative data. The journey from a conceptual scenario to actionable, numerically-backed insights is paved with careful definition, precise articulation, and a keen awareness of data quality.

At the heart of this process lie several core tenets. First, the **hypothetical scenario itself must be rigorously deconstructed and quantified.** Vague notions must be translated into specific parameters, assumptions, and clearly defined scopes. Without this foundational clarity, any subsequent search for data will lack direction. Second, the **research prompt must be architected with precision.** This involves achieving clarity, focus, and conciseness in the request; explicitly specifying the types of data, units, sources, and time periods; and strategically using keywords and constraints to guide the search. The structural components of a prompt—persona, context, task, data specification, and format—all play a role in its efficacy. Third, an unwavering **attention to data quality and reliability** must be woven into the prompting strategy. This includes requesting details about data sources and collection methodologies, and anticipating potential data gaps by allowing for the retrieval of proxies or data suitable for synthesis. Finally, prompts must be designed to minimize ambiguity and the potential for biased results.

It is important to acknowledge that developing the optimal research prompt is often an **iterative process**.4 The initial attempt may not always yield the perfect dataset. Researchers should be prepared to refine their prompts based on the initial outputs, learning from what information was retrieved and what was missed. This iterative refinement—adjusting keywords, clarifying terms, or narrowing the scope—is a natural part\_of effective research.

Furthermore, while specificity in prompting is paramount, it must be balanced with a realistic understanding of **data feasibility.** Some highly specific or novel scenarios may not have directly corresponding historical data. In such cases, the ability to prompt for analogous data, benchmarks, or inputs for modeling becomes crucial.

The ultimate purpose of obtaining "firm numbers" through these carefully constructed prompts is to derive **actionable insights.** Whether for business strategy, policy development, or academic inquiry, quantitative data provides the empirical grounding needed to evaluate hypothetical scenarios with greater confidence and rigor. Well-crafted research prompts are not merely a procedural step; they are a critical instrument in the pursuit of these insights. By adhering to the principles and practices outlined in this report, users can significantly enhance their capacity to navigate the complex information landscape and extract the valuable quantitative data necessary to illuminate the potential outcomes of their hypothetical scenarios.

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