Whitepaper

KPI Trees Redefined with the AI Advantage

Speed up decision-making processes to optimize business outcomes

Introduction

The unrelenting pursuit of success in today's competitive business environment hinges on the ability to translate vast amounts of data into actionable insights. Business intelligence (BI) tools are critical in this process, and they empower organizations to identify trends, understand customer behavior, and ultimately make data-driven decisions. However, the sheer volume of data can be overwhelming, making it difficult to isolate the key metrics that can cause the maximum impact. This is where Key Performance Indicators (KPIs) hold prime importance.

KPIs act as the lighthouses within a sea of data, guiding businesses towards their strategic objectives.

However, simply identifying relevant KPIs is just the first step. Enterprises require a structured framework for analyzing and interpreting these KPIs to maximize their effectiveness and ensure business success. One of the most effective ways to achieve this structured analysis is with KPI Trees. It connects individual KPIs to overarching business goals - establishing a hierarchical structure with high-level objectives at the root, and branching out into measurable KPIs. This visualization not only clarifies the 'why' behind specific KPIs, but also exposes their interdependencies. By understanding how seemingly disparate metrics influence each other, businesses can identify bottlenecks, anticipate challenges, and optimize strategies for maximum impact.

In the subsequent sections, we will explore how KPI Trees empower businesses, discuss the challenges associated with traditional development, and introduce artificial intelligence (AI)-assisted KPI-Tree Generation - an innovative module that leverages AI to streamline and enhance the KPI-Tree development process, ultimately unlocking the true potential of their data analysis.

6 Top Reasons Why Businesses need KPI Trees?

KPIs serve as the cornerstones of BI, offering quantifiable metrics that gauge the progress toward strategic objectives. However, KPIs alone are like isolated data points – ***'valuable but lack context'.***

Here is how KPI Trees empower businesses to leverage BI for problem-solving and continuous improvement:

- <u>Unveiling the "Why" Behind KPIs:</u> KPI Trees go beyond simply displaying numbers. They establish a clear hierarchy, linking high-level objectives (e.g., increasing market share) to specific, measurable KPIs (e.g., website conversion rate). This clarifies the purpose of each KPI, ensuring everyone understands how individual/team actions contribute to the bigger picture.

- <u>Illuminating Interdependencies:</u> KPI Trees expose the intricate relationships between seemingly disparate metrics. By analyzing these hidden connections, we can expose bottlenecks and identify unexpected opportunities.

- <u>Proactive Problem Solving:</u> KPI Trees establish clear targets for each metric. By monitoring performance trends, businesses can identify potential issues before they escalate and become bigger problems.

- <u>Data-Driven Decision Making:</u> KPI Trees provide a wealth of data-driven insights that empower informed decision-making. We can gain actionable insights to optimize strategies and course-correct before problems arise.

- <u>Enhanced Communication & Alignment:</u> A shared KPI Tree fosters communication and alignment across departments. This helps everyone to work towards the same objectives, understanding how their role contributes to overall success.

- <u>Continuous Improvement:</u> KPI-Tree establishes a feedback loop to refine strategies based on real-time performance data. By analyzing how adjustments to one KPI influence others within the tree, businesses can fine-tune their strategies for maximum impact.

In conclusion, KPI Trees are not simply a visualization tool - they are a powerful framework that empowers businesses to leverage the true potential of BI. By demystifying data and translating it into a clear roadmap for success, KPI Trees provides businesses with the necessary clarity and direction to navigate the ever-changing business landscape and achieve strategic objectives.

Traditional KPI Tree Development

Similar to the meticulous care required to cultivate a thriving tree, the traditional development of KPI Trees is a deliberate process. Constructing an effective KPI Tree involves thoughtful steps and strategic planning. While effective, this established approach can be time-consuming and requires dedicated resources and expertise. By following this structured method, businesses can build a robust KPI Tree that serves as a visual roadmap, guiding them to achieve their desired outcomes.

Let us delve deeper into the steps involved in traditional KPI Tree development and explore the intricacies of this foundational process.

- <u>Brainstorming and Consensus Building:</u> The journey often begins with extensive brainstorming sessions involving key stakeholders across different departments, outlining the overarching business goal. This process can be lengthy, requiring multiple meetings and discussions to reach a consensus on the primary objectives the company wants to achieve.

- <u>KPI Identification:</u> Once the goals are defined, the focus shifts to identifying the key performance indicators to measure progress toward those goals. This brainstorming session typically involves subject matter experts who can pinpoint the most relevant metrics for each objective.

- <u>Manual Mapping and Hierarchy Definition:</u> Once KPIs are identified - the painful task of manually mapping them onto the tree structure starts. This involves meticulously assigning each KPI to its appropriate level within the hierarchy, ensuring alignment with the overarching goals. The higher levels represent the overarching goals, with subsequent levels branching out to detail the specific KPIs that contribute to achieving those goals. This step requires a deep understanding of the business and its interconnected processes.

- <u>Data Source Integration:</u> For each KPI within the tree, the team needs to identify the data sources to influence the metric. This might involve extracting data from various business systems, like CRM platforms or marketing automation tools. Ensuring data consistency and potentially transforming data to align with KPI definitions can be a vital but time-consuming step.

- <u>Validation and Refinement:</u> The initial draft of the KPI-Tree undergoes thorough scrutiny by stakeholders. They review the proposed structure, ensuring alignment with objectives and identifying any potential gaps or inconsistencies. This feedback loop often leads to revisions and refinements, iterating on the initial design until a consensus is achieved.

While the benefits of KPI Trees are undeniable, traditional methods of creating them can be a laborious and time-consuming process. The core challenge is in defining the right objectives and KPIs. This often requires extensive brainstorming sessions with various stakeholders, each with their perspectives and priorities. Reaching consensus on the most relevant metrics can be a lengthy exercise, and the final selection might lack a data-driven foundation.

Additionally, establishing the hierarchical structure, including nodes and cohorts for segmentation, can be equally challenging. New users, unfamiliar with the intricacies of business metrics, might struggle to navigate the process entirely.

Disadvantages of Traditional KPI-Tree Generation Approach

- Time Consuming
- Human Bias
- Collaboration Challenges
- Limited Scope

In conclusion, the traditional approach to building KPI Trees can be a laborious and time-consuming journey. Imagine sifting through mountains of data, manually mapping KPIs, and wrestling with data inconsistencies – all while grappling with limited resources and tight deadlines. AI-assisted KPI Tree generation disrupts this paradigm. By leveraging the power of large language models (LLMs), businesses can streamline the entire process, transforming a slow and resource-intensive endeavor into a lightning-fast and efficient experience.

Artificial Intelligence (AI) algorithms can analyze vast amounts of data to identify relevant KPIs, suggest optimal tree structures, and even recommend AI-driven filters for deeper analysis. This not only reduces the time and effort required for KPI Tree development, but also democratizes the process, making this powerful tool accessible to businesses of all sizes and levels of expertise.

The Indispensable Role of AI in Problem Discovery

AI has emerged as a transformative force across various industries, and Business Intelligence (BI) is no exception. By leveraging AI's analytical capabilities, businesses can unlock deeper insights hidden within vast datasets, identify potential issues before they escalate into major disruptions, and make data-driven decisions that optimize performance.

This newfound ability to proactively uncover problems translates into a multitude of benefits like customer satisfaction, increased efficiency, reduced costs, and a competitive edge in a dynamic marketplace. There are several techniques that businesses can employ to facilitate problem discovery within the context of KPI Trees, using AI.

However, the true power of AI in problem discovery is not just in its ability to analyze vast amounts of data, but also in the diverse techniques it offers. These techniques go beyond simple data crunching and delve into the realm of pattern recognition, anomaly detection, and even scenario planning. By choosing the right AI technique for a specific business challenge within the context of a KPI Tree, companies can unlock a nuanced understanding of their operations and uncover hidden problems that traditional methods might miss.

In the subsequent sections, we will explore the various AI techniques that can be employed for problem discovery within KPI Trees. Each technique offers unique strengths and caters to different business needs. Understanding these techniques allows businesses to make informed decisions about the most suitable approach for specific goals.

Subsequently, we will transition to a real-world case study. Here, we will explore how **Incedo** strategically leveraged a specific AI technique to enhance problem discovery within the **Incedo Lighthouse's™** 'System of Insights' platform's KPI Tree framework. This case study will elucidate the practical application of these AI tools and their impact on business objectives.

AI Techniques for KPI-Tree Generation

AI tools can be utilized to construct more robust and informative KPI Trees, fostering a deeper understanding of business operations, predicting potential issues, and ultimately facilitating proactive decision-making. By integrating various AI techniques, businesses can unlock a new level of problem identification within their KPI frameworks. These techniques can be broadly categorized in two approaches:
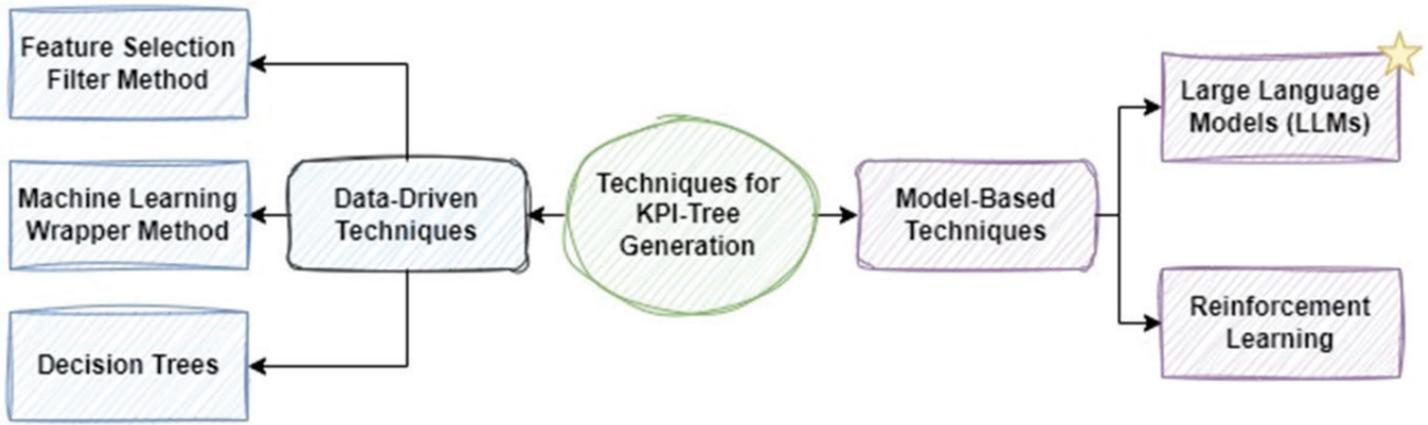
Data-Driven Techniques

Data-driven techniques are a powerful approach to decision-making and problem-solving that harness the power of historical and real-time data to identify patterns and anomalies - signaling potential problems. They move beyond intuition and anecdotal evidence, relying instead on statistical analysis and machine learning (ML) algorithms to extract meaningful insights from data. These techniques are particularly valuable when dealing with complex systems and large datasets, where traditional methods might struggle to identify patterns and trends.

When traditional KPI trees built on static data and manual analysis, fail to capture the evolving nature of your business or anticipate future problems, data-driven techniques offer a powerful solution. They can automate the identification of potential issues, optimize KPI selection, and provide a more dynamic and future-oriented view of your KPIs.

Let us explore some key data-driven techniques that are used in AI-powered KPI Tree generation:

- Feature Selection – Filter Method: Filter methods are a category of feature selection techniques that analyze the features (KPIs) and evaluate them based on their statistical properties without involving model building. They are computationally efficient and often used as a pre-processing step before applying other methods. Some of the common techniques for the filter method include the Chi-square test, correlation analysis, and variance thresholding.

- Machine Learning – Wrapper Method: Wrapper methods involve building and evaluating multiple models with different feature subsets. They assess the impact of including or excluding specific features on the overall performance of the KPI Tree model. Using wrapper methods, we can build more accurate and interpretable KPI Trees. However, these methods can be computationally expensive, especially with a large number of candidate KPIs.

- Decision Trees: This method utilizes the decision tree's information gain concept for generating KPI trees. Imagine a decision tree where the '*goal*' is a high-level KPI. Each split in the tree could represent a potential influencing factor on that KPI. By following a series of questions about these factors, the decision tree could help identify the most important KPIs that contribute to achieving the top objective. This way, decision trees are used as an analytical tool to explore the cause-and-effect relationships behind KPIs, guiding you in building a more impactful KPI Tree. This method is recommended when the relationship between features and the target KPI is complex and non-linear.

Model-Based Techniques

Model-based techniques encompass various methodologies that leverage computational models to understand, predict, or optimize complex systems. These techniques often involve constructing mathematical or computational models that simulate the behavior of the system under study. These techniques involve training AI models to simulate real-world scenarios and optimize decision-making. The two most popular techniques that are used in KPI Tree generation via model-based techniques include:

- Reinforcement Learning (RL): Reinforcement learning is a subset of machine learning where an agent learns to make decisions by interacting with an environment. The agent takes actions to maximize cumulative rewards over time. In the context of KPI Trees, RL can be used to optimize the selection of KPIs themselves. The agent can experiment with different KPI configurations, evaluating their effectiveness in identifying problems and driving business success. This iterative approach can lead to the creation of more robust and problem-sensitive KPI Trees, over time.

- Large Language Models (LLMs): Large language models, such as GPT (Generative Pre-trained Transformer) models, are a type of artificial neural network that can generate human-like text based on input prompts. These models are pre-trained on vast amounts of text data and can be fine-tuned for specific tasks or domains. These advanced AI models not only analyze data, but also understand complex relationships between different KPIs and identify subtle patterns that might indicate underlying issues. LLMs can even generate narratives that explain the root causes of identified problems, providing valuable context for decision-making. By incorporating LLMs into KPI Tree generation, businesses can gain a deeper understanding of the 'why' behind problems, allowing for more targeted and effective solutions.

In conclusion, both data-driven and model-based techniques offer valuable tools for KPI-tree creation. Data-driven approaches leverage the power of historical information to identify trends and relationships, while model-based techniques allow for simulations and predictions based on an understanding of the underlying system. By leveraging these diverse techniques, businesses can create dynamic and problem-sensitive KPI Trees, fostering proactive problem discovery and propelling their operations toward greater efficiency and success.

Incedo Lighthouse™ AI-powered approach

Incedo balances data-driven approach with model-driven approach to best suite every client use case, reflecting its core values of exceeding client expectations and embracing innovation. To empower business analysts with the power of AI at KPI Tree definition stage, we have implemented an innovative functionality that leverages Large Language Models (LLMs) for generating KPI Trees within the Incedo Lighthouse™ platform.

The Incedo Lighthouse™ platform is a decision automation platform that empowers business analysts to build KPI Trees and gain growth insights using advanced AI/ML algorithms. To streamline the process further, Incedo developed an LLM-based framework that automatically generates KPI Trees based on specific business needs and external data. This translates to a dramatic reduction in time spent building KPI Trees, allowing analysts to focus on strategic insights.

This AI-powered module utilizes prompt engineering, RASA's conversational AI framework, and LLMs to create effective and accurate KPI Trees at an accelerated pace. In real-world scenarios, this translates to a powerful tool for building KPI-Trees that drive faster problem discovery and fuel business growth. Let us delve deeper into this innovative module and explore how Incedo constructed this powerful AI-driven solution.

AI-Assisted KPI-Tree Generation Module

The AI-assisted KPI-Tree generation module is an innovative framework that empowers users to effortlessly generate comprehensive Key Performance Indicator (KPI) trees tailored to their specific business needs, revolutionizing the way organizations approach problem discovery and decision-making.

At the heart of this innovation lies the adept utilization of Large Language Models (LLMs), such as cutting-edge language models like GPT (Generative Pre-trained Transformer). Unlike traditional methods that rely solely on predefined algorithms, the AI-assisted KPI-Tree Generation Module harnesses the power of LLMs for unparalleled creativity and ideation.

Using LLMs the right way

LLMs, with their vast knowledge base and ability to process complex information, are revolutionizing various industries. However, LLMs are not just sophisticated tools for language processing; they are engines of creativity, capable of understanding context, extracting insights, and generating human-like responses.

In the realm of KPI-Tree generation, by leveraging LLMs within the KPI-Tree generation framework, businesses can unlock a wealth of novel ideas and innovative approaches to constructing KPI trees. These models engage in nuanced dialogue, understanding the intricacies of business contexts, and proposing solutions that resonate with human intuition. This synergy between human ingenuity and machine intelligence paves the way for the emergence of dynamic, business-centric KPI trees that not only capture existing metrics but also anticipate future needs and opportunities.

Thus, by harnessing LLMs the right way, organizations can unlock a wealth of novel ideas and insights, propelling them toward sustainable growth and success. To fully unlock the potential of LLMs, one needs to explore prompt engineering. Prompt engineering is essentially the art of giving instructions to artificial intelligence (AI) models, particularly LLMs, in a way, that gets the desired response. It is all about constructing the perfect question or instruction to get the specific response you want. Let us explore the tips and tricks to write good prompts.

Prompt Engineering 101

Effective prompts are the magic touch for unlocking the true potential of LLMs. Imagine a powerful engine – an LLM – but without clear instructions, it might run inefficiently or produce irrelevant outputs. Good prompts act as your guide, providing the LLM with the necessary context and direction to deliver the desired response. By carefully constructing your prompt, you can steer the LLM towards tasks like creative writing, code generation, or question answering, all with increased accuracy and relevance.

In essence, good prompts bridge the gap between your intent and the LLM's capabilities, making them crucial for maximizing the effectiveness of this powerful technology. An effective prompt is clear, has specific instructions, is easy to understand, gives the LLM model time to think, and has a predefined output and input format. The basic strategy to write an effective prompt while building an enterprise-grade framework, irrespective of the LLM model you are working with is as follows:

- Scenarios: Start your prompt with some scenarios as they provide a specific context for the LLM to work within, making the prompt more engaging and leading to more realistic or creative outputs. Users can envision themselves within the context provided, which not only aids comprehension but also fosters a more immersive and personalized experience. Additionally, scenarios can help frame the user's intent more clearly, guiding AI models to generate responses that align with the depicted situation. Overall, leveraging scenarios in prompts adds depth and richness to AI interactions, facilitating more meaningful exchanges between users and LLMs.

- Input (Metadata): This is an optional section in your prompt that can take user input within a delimited space. Delimiters like commas, semicolons, tabs, quotes, back quotes, or pipes are used in the prompts to highlight distinct parts of user input. They also prevent prompt injection (security vulnerability that tricks the LLM into doing something unexpected)

- Business Logic: The business logic section within an LLM prompt serves as the core instruction, dictating the model's desired action. Formulated with utmost precision and clarity, this section guides the LLM in executing the specific task. It should seamlessly integrate the provided scenario and any user inputs, ensuring the LLM operates with the necessary context and information. By prioritizing both accuracy and clarity in the business logic section, we empower the LLM to deliver optimal results that align perfectly with the intended business objective. Furthermore, a well-crafted business logic section fosters efficient communication between humans and LLMs, minimizing the risk of misinterpretation and wasted processing cycles.

- Output Format: Output formats play a crucial role in constructing effective prompts, particularly in scenarios where users expect specific types of responses or actions from AI systems. This section acts as a blueprint for the LLM's response, specifying the desired structure and organization of the generated content. Including an output format section promotes clarity and reduces ambiguity, ensuring the LLM generates content that directly aligns with your needs.

  This not only saves time and resources but also fosters a more productive interaction with the LLM. Furthermore, a defined output format proves particularly valuable when integrating LLM responses into software applications. By pre-specifying the format, the generated content can be seamlessly incorporated into the application's architecture, streamlining the development process and ensuring a smooth user experience.

Hence, by employing a series of well-crafted prompts that guide users through each step of the interaction process, developers can harness the collective intelligence of AI systems to streamline workflows and automate complex tasks. This approach empowers users to convey their intents and preferences succinctly, enabling AI models to adapt and generate tailored responses in real time.

Through iterative refinement and continuous feedback loops, such frameworks evolve to become versatile tools capable of addressing diverse needs and scenarios with speed and efficiency. Ultimately, the strategic integration of prompts and user inputs lays the foundation for agile and adaptable software frameworks that empower users to accomplish tasks effectively and effortlessly.

Effective Prompt Example

```
metric_prompt = f"""
You are a subject matter expert who has in-depth knowledge of specific business processes or functions \
which is used to identify critical performance indicators that directly impact the success of an
organization \
working for the ```{usecase}``` usecase. \
```
— Scenario

```
You are assigned a task to identify a list of industry-specific key performance indicators (KPI) metrics,
\
for which the organization wish to create a KPI-Tree. \
\
The KPI-metrics should have the following: \
- An industry standard name or widely accepted name. \
- A proper description describing the usage of the KPI-metric in the business. \
- Polarity having values from ```Positive``` or ```Negative``` highlighting the impact of the metric on
performance. \
- A unit having values from ```$```, ```%```, ```#``` highlighting the metric's domain and value formats.
\
- A SQL formula to calculate the KPI-metric from the raw dataset having the triple backquotes enclosed
metadata: \
```{metadata}``` \
If metadata is incorrect or not suitable, than using your own knowledge provide a default Spark-SQL
formula for the task. \
\
```
— Business Logic (With Inputs)

```
Provide a parseable JSON array of at least {metric_threshold} KPI-metrics and format the KPI-Metric data
in JSON format having the following keys: \
- ```name```: Holds the name for the KPI-metric. \
- ```description```: Holds the description for the KPI-metric. \
- ```polarity```: Holds the polarity value for the KPI-metric. \
- ```units```: Holds the metric unit value. \
- ```formula```: Holds a valid default Spark-SQL formula to calculate the KPI-metric value. \
\
Provide only a single parseable JSON array containing KPI-metric data as output.
"""
```
— Output Format
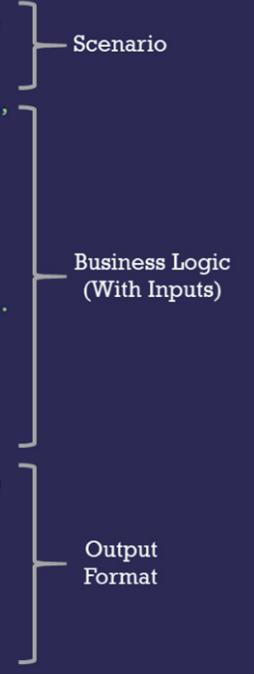
This approach can serve as a cornerstone for constructing an AI-assisted KPI-Tree generation module, where each prompt is meticulously crafted to furnish users with essential configurations. These configurations, in turn, seamlessly transition into inputs for subsequent prompts, orchestrating a fluid and intuitive user experience.

By strategically guiding users through the iterative process of KPI-Tree creation, this module empowers them to distill complex data into actionable insights with precision and ease. Through the symbiotic interplay of prompts and user inputs, this framework not only enhances productivity but also fosters deeper engagement and comprehension, positioning users to make informed decisions with confidence and efficiency.

Tree Creation Wizard: A Walkthrough

The AI-assisted KPI-Tree Generation utility harnesses LLMs to recommend the KPI Tree structure elements and then utilize user-provided configurations to generate a KPI Tree in adherence to the business use case. Concisely, by analyzing user-provided input metadata and the specific business use case, the LLM intelligently recommends elements for your KPI Tree. These elements include:

- **Use Case and Metadata Input:** The user provides the business use case and optionally some metadata (raw data required for the KPI-Tree) after accessing the Incedo Lighthouse's™ automated KPI-Tree creation wizard. This use-case input is provided to LLM to suggest to the user some suitable KPIs in adherence to the business use-case. In case the user also provides the metadata, it is also sent to the LLM to ensure that all the AI responses are per the raw data provided by the user.

- **KPI Metrics:** The LLM suggests relevant metrics to track and measure, ensuring your KPI Tree focuses on the most impactful indicators. Users can select up to 8 KPI metrics out of which the first selected metric acts as the primary KPI metric for the tree.

- **Analysis Areas:** After selecting KPI metrics, the LLM identifies key areas within your business use case for focused analysis, helping you structure the KPI Tree for optimal insights. User can select up to four analysis areas under their provided business use case.

- **Sub-categories and Levels:** In accordance with the selected analysis areas, the LLM recommends appropriate levels of segmentation within the KPI Tree, enabling a granular or high-level view depending on your needs. The user can select up to four segments, generating a KPI-Tree of at most four levels.

- **Tree Output Satisfaction:** At this stage, the basic structure of the KPI-Tree is ready and the tree creation wizard prompts the user to ask whether they are satisfied with this KPI-Tree or not. If not, the wizard ends and the tree is not saved in the Incedo Lighthouse's™ decision automation platform.

- **Other Details Prompt:** Once the user is satisfied with the basic structure of the KPI Tree, the LLM assists with constructing clear and descriptive names, and goals, and even suggests filter and cohort segmentation options for refining your KPI Tree's focus.

- **Global Query Formulation:** If needed, the LLM can even help formulate a global query that summarizes the overall objective of your KPI tree.

- **Validation and Review:** Once all the above stages are completed, the KPI Tree is generated and saved in the Incedo Lighthouse™ platform. Users can access their KPI-Tree by the URL provided as the conclusive statement in the AI-assisted tree creation wizard.

AI-Assisted KPI-Tree Generation Module
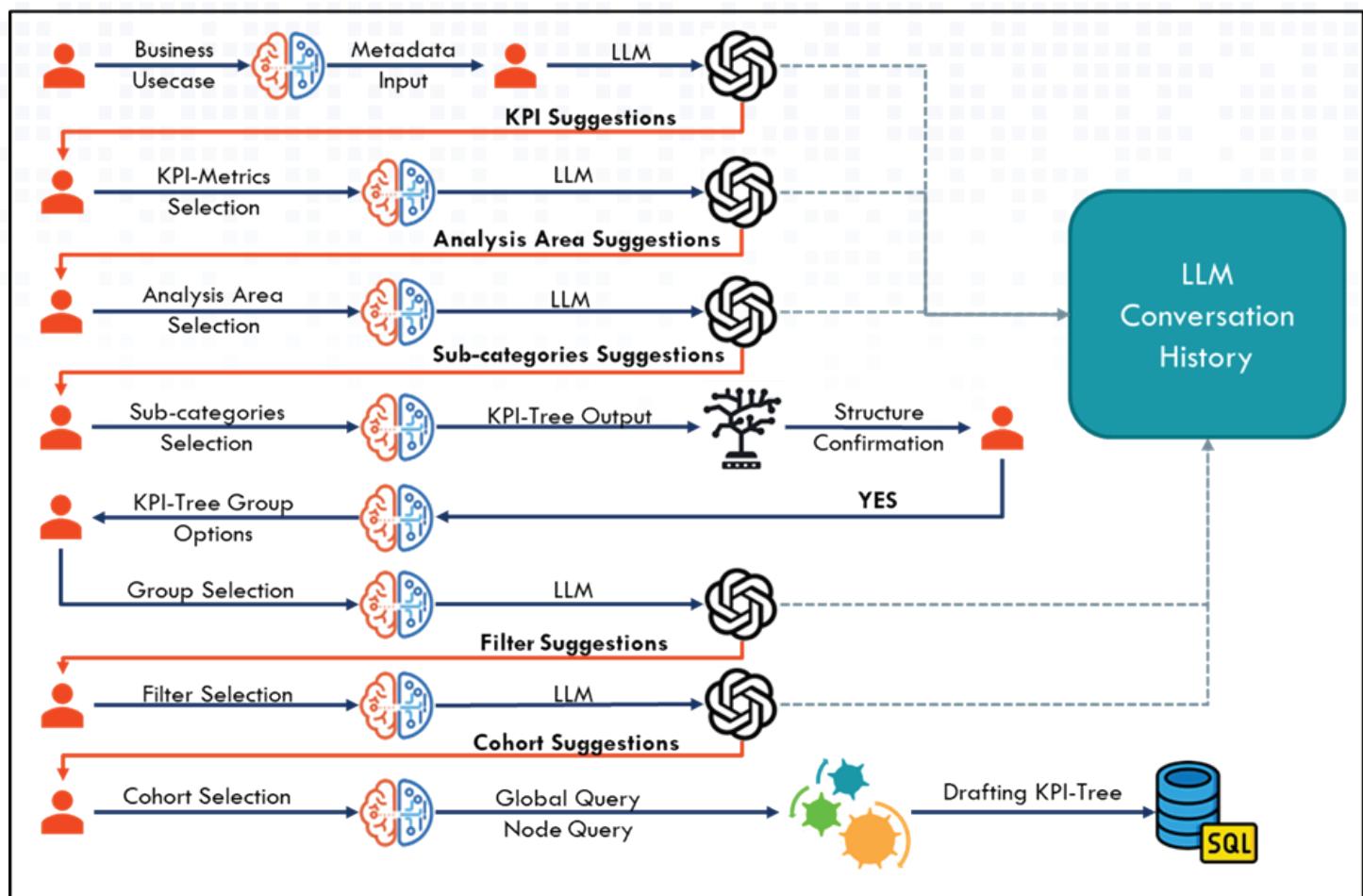
Real-world applications using the Incedo Lighthouse™ platform

Incedo Lighthouse™ transcends the realm of theoretical innovation, transforming it into a powerful tool that empowers businesses to unlock tangible value across diverse industries. This decision automation platform seamlessly integrates cutting-edge AI functionalities like the AI-assisted KPI-Tree generation module, empowering users to navigate the complexities of data analysis and make informed, data-driven decisions.

Let us delve into two compelling real-world applications that highlight the transformative potential of Incedo Lighthouse™:

Optimizing Cross-Sell Revenue through Data-Driven Product Pairing Analysis

Maximizing revenue through strategic cross-selling is a cornerstone of many successful businesses. By recommending complementary products alongside customer purchases, businesses can increase average order value and improve customer satisfaction. However, implementing an effective cross-selling strategy requires a data-driven approach to identify the right product pairings.

This is where we can create a KPI Tree to analyze customer purchase behavior and uncover frequently co-purchased products. This way we can develop targeted cross-sell recommendations that enhance customer experience and drive incremental sales. This data-driven approach ensures product relevance and increases the likelihood of successful cross-selling, ultimately boosting customer lifetime value and overall profitability.

To optimize cross-sell revenue through product pairing analysis, we can leverage Incedo Lighthouse's™ AI-powered KPI-Tree generation module. This functionality allows for the creation of a customized KPI-Tree by specifying the following parameters:

- **Business Use Case:** Identify the specific business objective, such as maximizing cross-sell revenue for a particular product category.

- **Primary KPI Metric:** Define the key performance indicator that measures success, e.g., total cross-sell revenue generated.

- **Analysis Areas:** Specify the data points to be analyzed, such as customer purchase history, product attributes, and promotional effectiveness.

- **Segmentations:** Refine the analysis by segmenting customers based on relevant demographics, purchase behavior, or other criteria.

Based on these inputs, Incedo Lighthouse's™ AI engine generates a comprehensive KPI Tree within the platform, as illustrated below.

UseCase: Optimize cross-sell revenue via product pairing analysis in the banking industry

Primary Metric: Cross-sell Conversion Rate

Unit: %

Polarity: +ve

Desc: Percentage of customers who purchases complementary products when presented with cross-selling offer

Analysis Areas

Product Category: identify which categories have higher conversion rates

Customer Segment: customer cohorts for in-depth analysis

Geographic Region: identify regional preferences.

KPI-Tree Output:
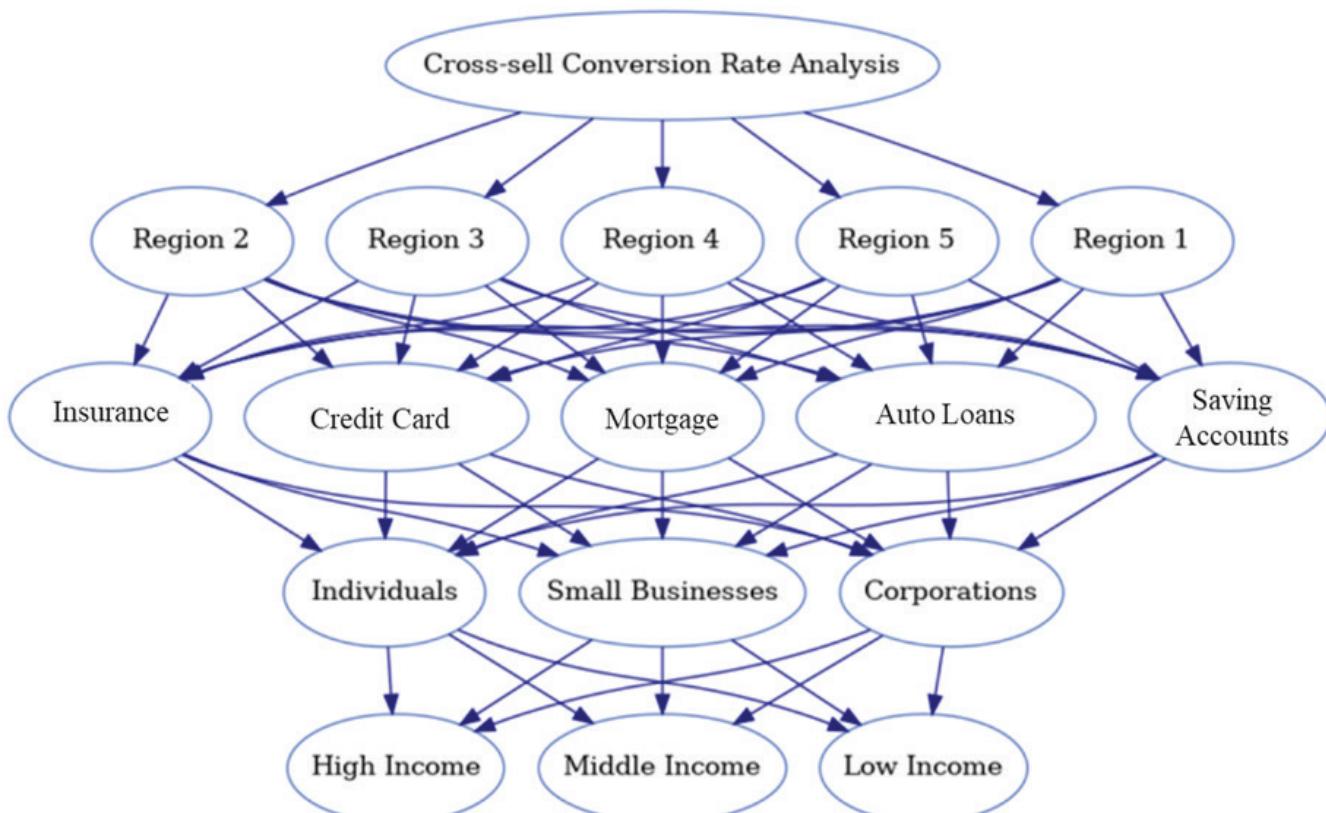
The KPI Tree in the above pictorial breaks down the cross-sell conversion rate into smaller, more manageable metrics, such as region, customer type (individual, small business, corporation), income level (high, middle, low), and product type (insurance, credit card, mortgage, auto loans, savings accounts).

This allows businesses to identify areas where they can improve their cross-sell conversion rate. For example, the KPI-Tree might show that the cross-sell conversion rate for credit cards is higher in region 2 than in region 3. This could be because there is a more targeted marketing campaign for credit cards in Region 2. By understanding these factors, businesses can make changes to their cross-sell strategy to improve their overall conversion rate.

Optimizing Average Credit Card Spend Via Hyper-personalized Segmentation

In the digital era, consumer preferences evolve rapidly, demanding agile strategies from credit card companies. Understanding individual spending habits, preferences, and triggers is vital for crafting effective marketing campaigns that drive higher spending. In the credit card industry, a key metric for success is increasing the average amount customers spend on their cards (average credit card spend per user).

To achieve this, credit card companies rely on customer segmentation and targeted marketing campaigns. However, manually creating these segments and designing effective campaigns can be time-consuming and inefficient. Hence, there is a pressing need for sophisticated tools that can efficiently analyze vast datasets and extract actionable insights to fuel targeted marketing endeavors. Here is where AI-assisted KPI-tree generation emerges as a game-changer.

Imagine a scenario where a credit card company aims to boost the average spend per user. Through AI-assisted KPI-tree generation, the company can seamlessly aggregate and analyze transactional data, demographic profiles, and spending habits of its customer base. The AI model identifies distinct customer segments based on factors such as income levels, purchase frequency, preferred merchants, and spending categories.

Subsequently, it constructs a comprehensive KPI tree, outlining the primary drivers of spending within each segment. One such example of a KPI-Tree generated via Incedo Lighthouse's™ AI engine is illustrated below.

UseCase: To significantly increase the average credit card spend per user by leveraging hyper-personalized segmentation and targeted marketing campaigns.

Primary Metric: Average Credit Card Spend per User

Unit: $

Polarity: +ve

Desc: It helps measure the effectiveness of marketing campaigns in increasing the average spend per user

Analysis Areas

Industry Segment: identify which industries have higher average spend

Geographic Region: identify regional preferences.

Customer Segment: customer cohorts for in-depth analysis

KPI-Tree Output:
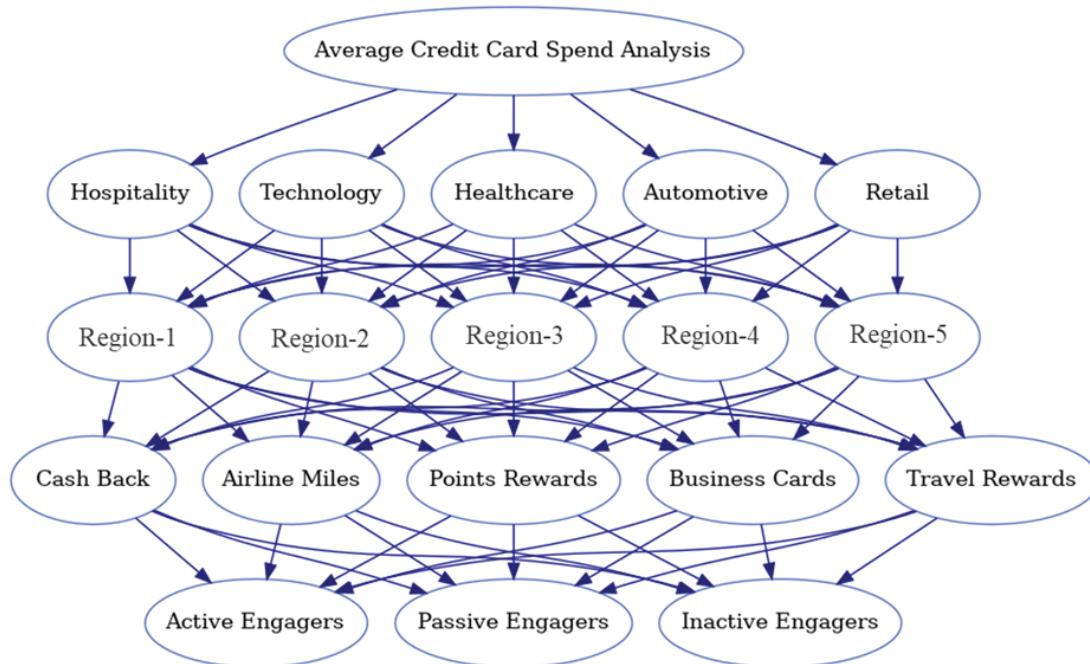
Armed with these insights, the credit card company can devise hyper-personalized marketing campaigns tailored to the unique preferences and behaviors of each customer segment. Whether it is offering exclusive rewards for frequent travelers, cashback incentives for dining enthusiasts, or discounts on popular retail categories, the marketing strategies are finely tuned to resonate with specific target audiences.

Additionally, the AI can predict the potential impact of these campaigns, allowing the company to prioritize efforts with the highest ROI. This results in a more efficient allocation of marketing resources, maximizing the return on investment. As a result, customers feel valued and understood, fostering stronger brand loyalty and driving increased spending over time.

Way Forward

The AI-assisted KPI-Tree Generation Module represents a significant leap forward in the field of decision automation and data analytics. By harnessing the power of AI to automate KPI discovery, it empowers organizations to unlock actionable insights from their data quickly and efficiently. With its user-centric approach, advanced AI capabilities, and focus on business use cases, the module is poised to revolutionize decision-making processes across industries, driving business success and innovation in the digital age.

About the Author
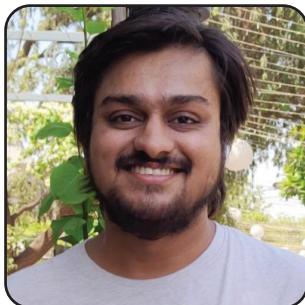
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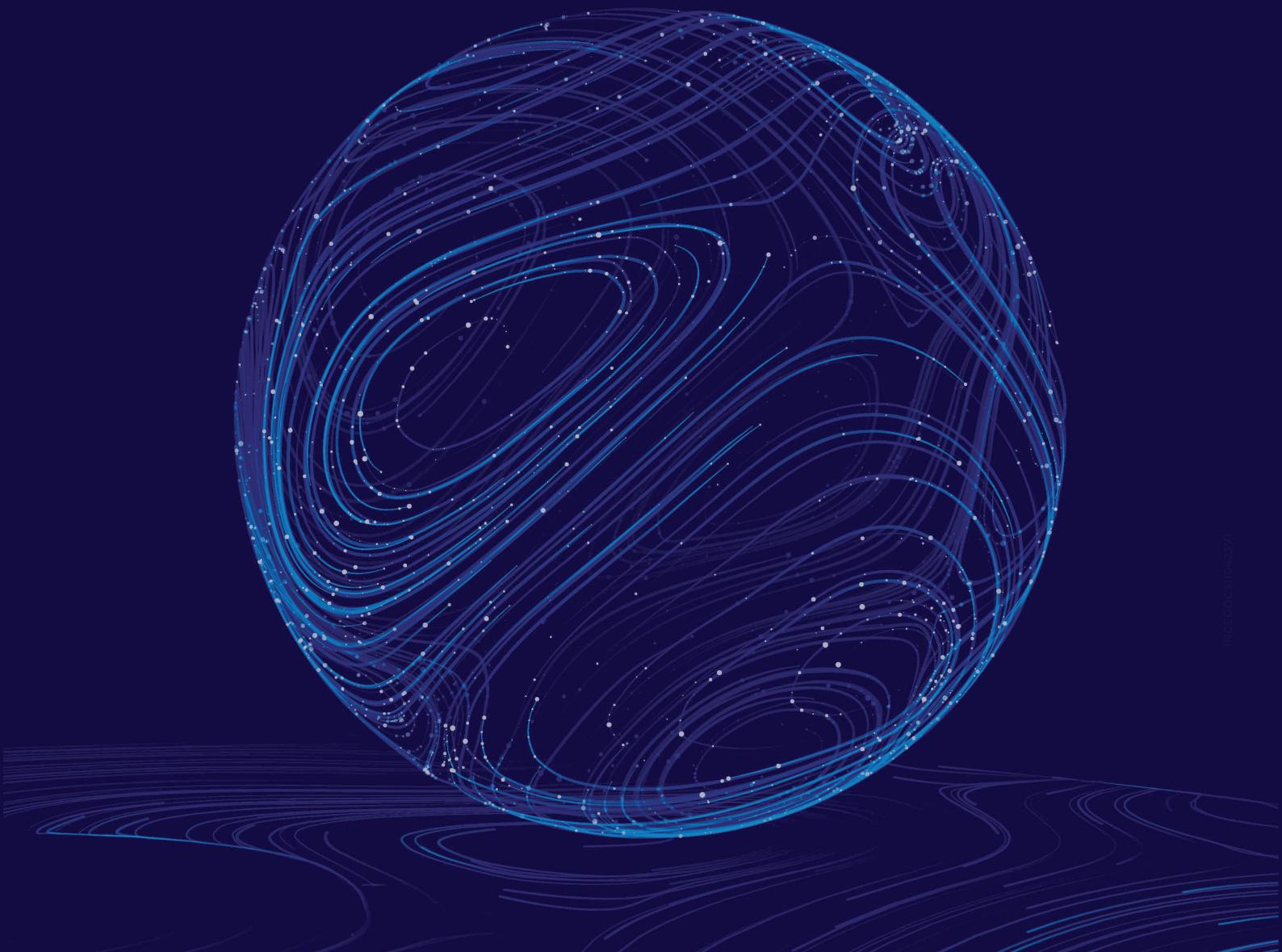
About Incedo

Incedo is a digital transformation expert empowering companies to realize sustainable business impact from their digital investments. Our integrated services and platforms that connect strategy and execution, are built on the foundation of Design, AI, Data, and strong engineering capabilities blended with our deep domain expertise from digital natives.

With over 4,000 professionals in the US, Canada, Latin America, and India and a large, diverse portfolio of long term, Fortune 500 and fast-growing clients worldwide, we work across financial services, telecom, product engineering, and life sciences industries.

9+
Fortune 500 Customers

10+
Global Locations

4k+
Employees Globally

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