

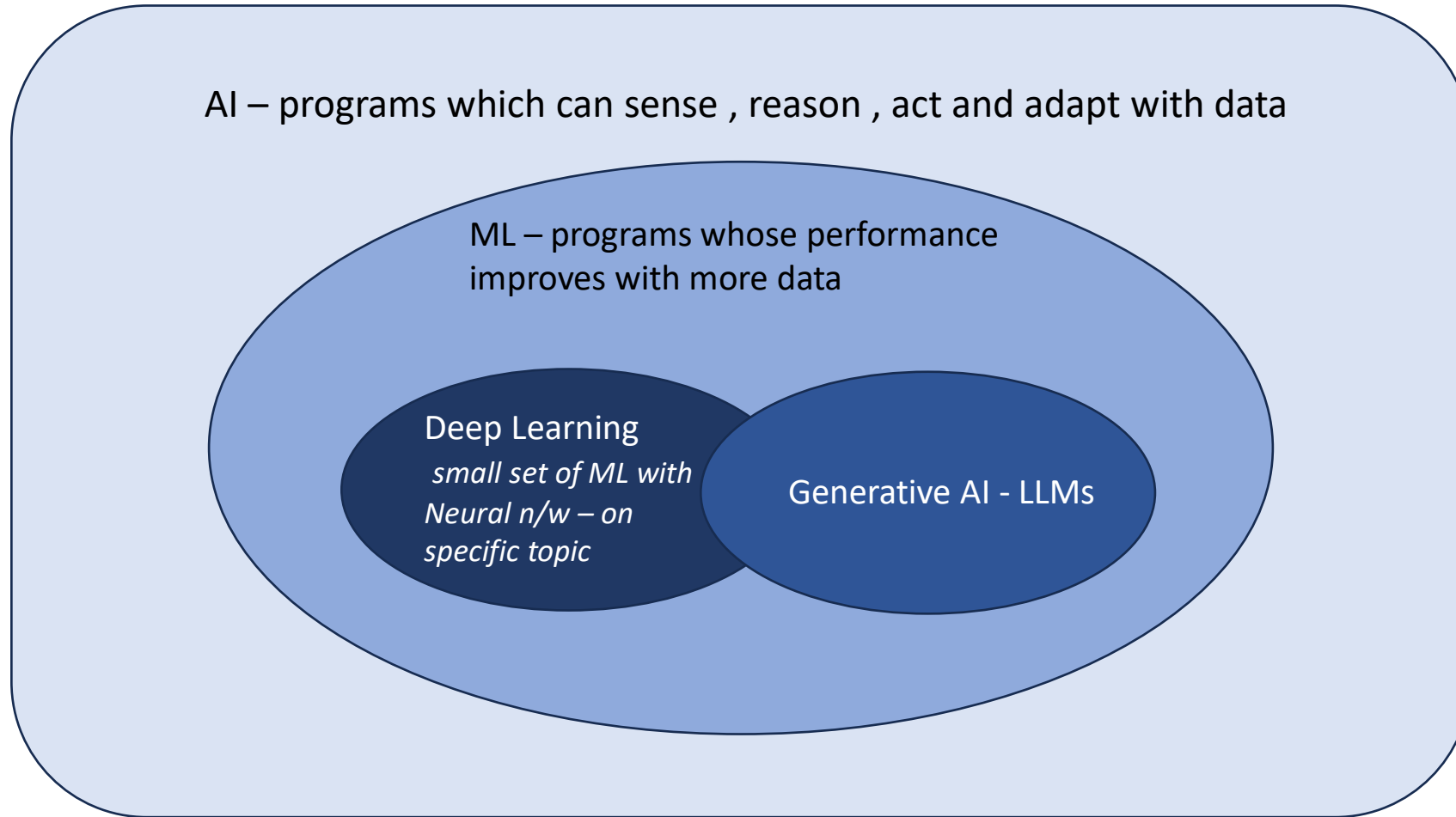


# Smart Tourism – role of AI & ChatGPT

OTOAI – Kenya Convention – Nov 2023

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# Understanding the “world” of AI



# Understanding GPT in ChatGPT

**Generative** : capable of generating new content based on patterns and context which they have learned from training data .. E.g. The Sky is \_\_\_\_ can have the word “blue” but if we say. It’s raining and the sky is \_\_\_\_, it will say “cloudy”.

**Pre-Trained** : pre-trained on vast amount of data from wide range of sources with a focus to learn “linguistic patterns” , grammars , facts and context.

**Transformer** : built on Transformer architecture , a famous neural network model specially designed for natural language processing tasks.

# Why ChatGPT needs controlling?

## Generative AI Myths

**1. AI Can Think Like Humans:** AI has consciousness and thinks like a human.

**2. AI Understands Context Perfectly:** AI understands and interprets context and nuance like humans.

**3. AI Outputs are Always Reliable:** Outputs from AI are always accurate and can be trusted without verification.

## Generative AI Realities

**1. AI Lacks Consciousness:** AI operates based on algorithms and data, without consciousness or human-like reasoning.

**2. Limited Contextual Understanding:** AI often struggles with understanding context and nuance in complex situations.

**3. Need for Verification:** AI-generated content can have inaccuracies and biases, needing human verification.

## A Multitask, Multilingual, Multimodal Evaluation of ChatGPT on Reasoning, Hallucination, and Interactivity

Yejin Bang, Samuel Cahyawijaya, Nayeon Lee, Wenliang Dai, Dan Su, Bryan Wilie, Holy Lovenia, Ziwei Ji, Tiezheng Yu, Willy Chung, Quyet V. Do, Yan Xu, Pascale Fung

This paper proposes a framework for quantitatively evaluating interactive LLMs such as ChatGPT using publicly available data sets. We carry out an extensive technical evaluation of ChatGPT using 23 data sets covering 8 different common NLP application tasks. We evaluate the multitask, multilingual and multi-modal aspects of ChatGPT based on these data sets and a newly designed multimodal dataset. We find that ChatGPT outperforms LLMs with zero-shot learning on most tasks and even outperforms fine-tuned models on some tasks. We find that it is better at understanding non-Latin script languages than generating them. It is able to generate multimodal content from textual prompts, via an intermediate code generation step. Moreover, we find that ChatGPT is 63.41% accurate on average in 10 different reasoning categories under logical reasoning, non-textual reasoning, and commonsense reasoning, hence making it an

BTW , ChatGPT's own footer says:

*ChatGPT can make mistakes.  
Consider checking important information.*

# Facets in ChatGPT – Prompt Engineering

**Prompt engineering** refers to the skillful crafting of inputs to effectively communicate with artificial intelligence (AI) models .. especially those which are trained for natural language processing and generation. It involves creating clear, concise, and specific requests or questions that guide the AI to produce the desired output or result.

*"Create a 7-day travel itinerary for a family of four visiting Tokyo in April. They are interested in a mix of cultural experiences, such as visiting temples and museums, and family-friendly activities, including amusement parks and interactive science centers. They prefer a relaxed pace, with no more than two major activities per day, and would like suggestions for family-friendly restaurants. Please include travel tips for navigating the city with young children."*

# Facets in ChatGPT – Fine Tuning

**Fine-tuning** in machine learning and artificial intelligence refers to the process extending an already trained model on a new and more specific data. This process helps the model to perform better on a particular type of task or understand a specific domain of data better than it did before.

E.g. In our case , to specialize the model for travel itinerary building , data is prepared that consists of travel-related queries, conversations, and information. This dataset will also include examples of travel itineraries which are popular , customer queries about travel destinations , reviews of places , and discussions about traveling preferences. In this case the query given below will give more accurate results than the one shown before.

*"Create a 7-day travel itinerary for a family of four visiting Tokyo in April. They are interested in a mix of cultural experiences, such as visiting temples and museums, and family-friendly activities, including amusement parks and interactive science centers. They prefer a relaxed pace, with no more than two major activities per day, and would like suggestions for family-friendly restaurants. Please include travel tips for navigating the city with young children."*

# Facets in ChatGPT – Chain of Thought

**Chain of Thought** is a technique used in AI language models, particularly in problem-solving which needs reasoning. It involves structuring the model's response to emulate a human-like thinking , where the model explicitly writes out the steps or considerations it takes into account while giving an answer.

E.g. In our same Tokyo case , we can get a response as:

**Day 1 - Introduction to Paris:** Since it's their first day, they might want to start with something iconic and not too overwhelming. Let's begin with a visit to the Louvre in the morning, as it's a must-see for art lovers. In the afternoon, a leisurely walk along the Seine and exploring the Latin Quarter will offer a taste of history and local culture. For dinner, a reservation at a classic French bistro will introduce them to gourmet French cuisine.

**Day 2 - Exploring History and Art:** The morning can be dedicated to visiting the Musée d'Orsay to enjoy Impressionist and Post-Impressionist art. The afternoon could be spent in Le Marais, a historic district with beautiful architecture and museums like the Picasso Museum. Ending the day with a contemporary French dinner in the Marais district.

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..

**Day 7 - Leisure and Shopping:** Keep this day light and flexible. Suggest starting with Akihabara for those interested in electronics, anime, and manga. Have a casual lunch in a café there. In the afternoon, visit Ginza for some final shopping. End the trip with a special dinner at a restaurant offering a fusion of Japanese and Western cuisines.

This itinerary balances cultural experiences, family-friendly activities, and relaxation, with dining suggestions that cater to a family setting, fitting the family's preferences and pace.

# Facets in ChatGPT – Embedding

**Embedding** is a technique used to convert words, sentences, or even entire documents into a form (usually a vector of real numbers) that a machine learning model can understand with a focus on how external sources of data are integrated into the process..

**Gathering External Data:** access to various external data sources that are propriety to your business like local event databases that provide information about Tokyo's attractions, restaurants, and cultural events that you have on a PDF, Word file, Database or a PPT.

## **Data Conversion to Embeddings:**

- **Textual Data:** Descriptions of attractions (e.g., Senso-ji Temple, Tokyo Disneyland, Ueno Park), reviews of family-friendly restaurants, and details about cultural experiences are converted into embeddings.
- **Contextual Understanding:** These embeddings encapsulate not just the literal meaning of words but also their context. For instance, the embedding for "Senso-ji" would capture its significance as a historic temple, its appeal to families, and perhaps its location in Asakusa.



# Facets in ChatGPT – RAG

**RAG** , which stands for "Retrieval-Augmented Generation," is a technique in machine learning which first finds the most relevant information from a data and then uses that information to generate a response.

In our example Tokyo itinerary , RAG system will first search through a large database for information relevant to traveling in Tokyo. This could include articles about Tokyo's top tourist attractions, blogs about family activities in Tokyo, and reviews of family-friendly restaurants in the city. It will then identify and get snippets of text that provide this information. Generated itinerary will look like:

Day 1: Visit Senso-ji Temple in Asakusa, followed by lunch at a nearby family-friendly ramen shop. In the afternoon, explore Ueno Park and visit the National Museum of Nature and Science.

Day 2: Spend the morning at the Edo-Tokyo Museum, then have lunch in Ryogoku. Visit Tokyo Skytree in the afternoon, with dinner at a restaurant in the Skytree complex.

Day 3: Day trip to Tokyo Disneyland, with meals in the park.

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..

Day 6: Visit Odaiba, including the teamLab Borderless exhibit, and enjoy a variety of dining options in the area.

Day 7: Free day for shopping and exploring at leisure, with suggestions for Shinjuku, Ginza, and Akihabara. End with a farewell dinner at a conveyor belt sushi restaurant recommended in the retrieved articles.

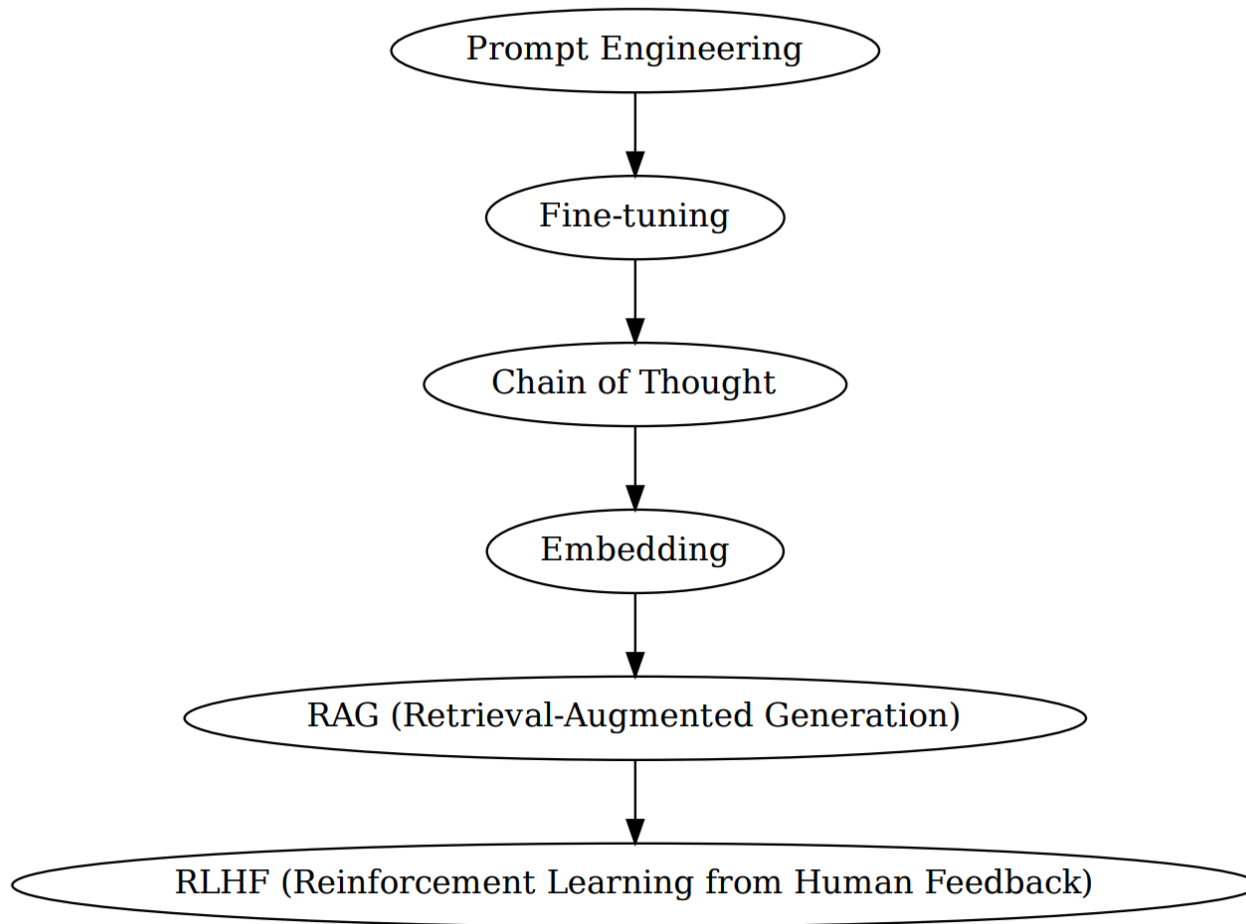
# Facets in ChatGPT – RLHF

**RLHF** stands for "Reinforcement Learning from Human Feedback." It's a training approach used in LLMs where the model is initially trained on a large data (pre-training) and then fine-tuned using human feedback. This feedback typically is comparisons and corrections making the model to learn from human judgment and preferences which improves the quality of response.

In our example Tokyo itinerary , experience trainers will review the AI-generated itinerary and provide feedback. This can include pointing out that certain suggested activities are too far apart to be practical , noting that a recommended restaurant is not actually family-friendly , or suggesting the inclusion of rest day etc. So , refined itinerary will look like:

- Day 1: Asakusa tour including Senso-ji Temple, followed by a visit to Ueno Park and its museums.
- Day 2: Trip to Tokyo Disneyland.
- Day 3: Visit the Meiji Shrine and Harajuku, with a relaxed afternoon in Yoyogi Park.
- Day 4: Explore the Edo-Tokyo Museum in the morning, then visit the Odaiba area in the afternoon.
- Day 5: Day trip to Yokohama, including the Cup Noodles Museum and Yokohama Cosmo World.
- Day 6: Leisure day for exploring areas like Shibuya and Ginza at their own pace.
- Day 7: Visit the Ghibli Museum in Mitaka, followed by a stroll in Inokashira Park.

# Why this matters?



From being 63.41% accurate and not real-time ..

generation step. Moreover, we find that ChatGPT is 63.41% accurate on average in 10 different reasoning categories under logical reasoning, non-textual reasoning, and commonsense reasoning, hence making it an

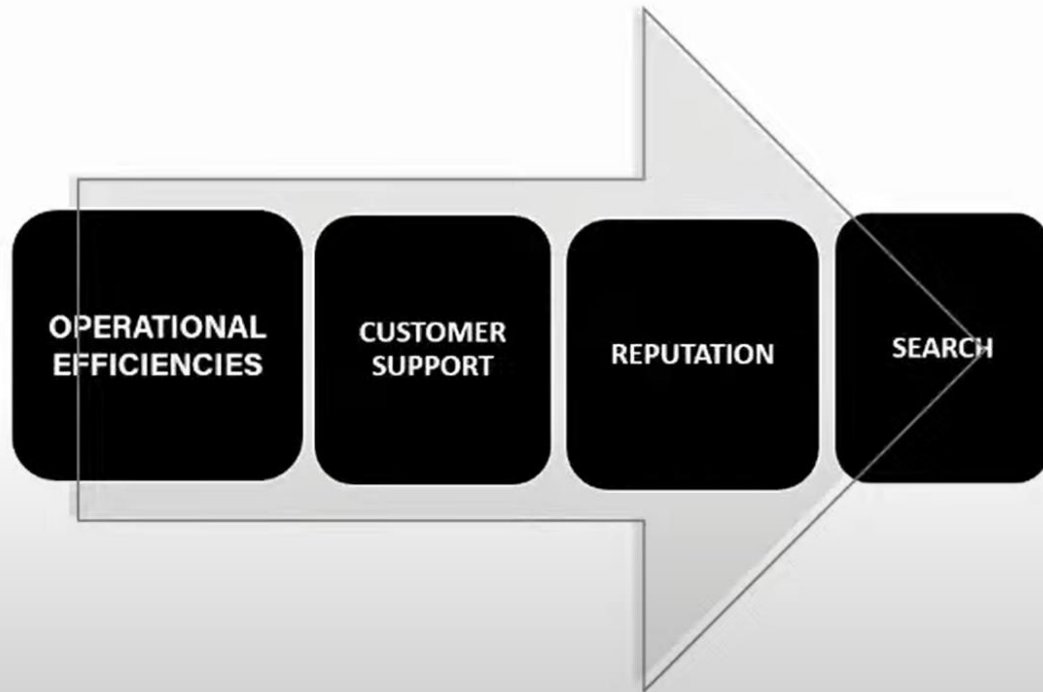


99% accurate , real-time , controlled

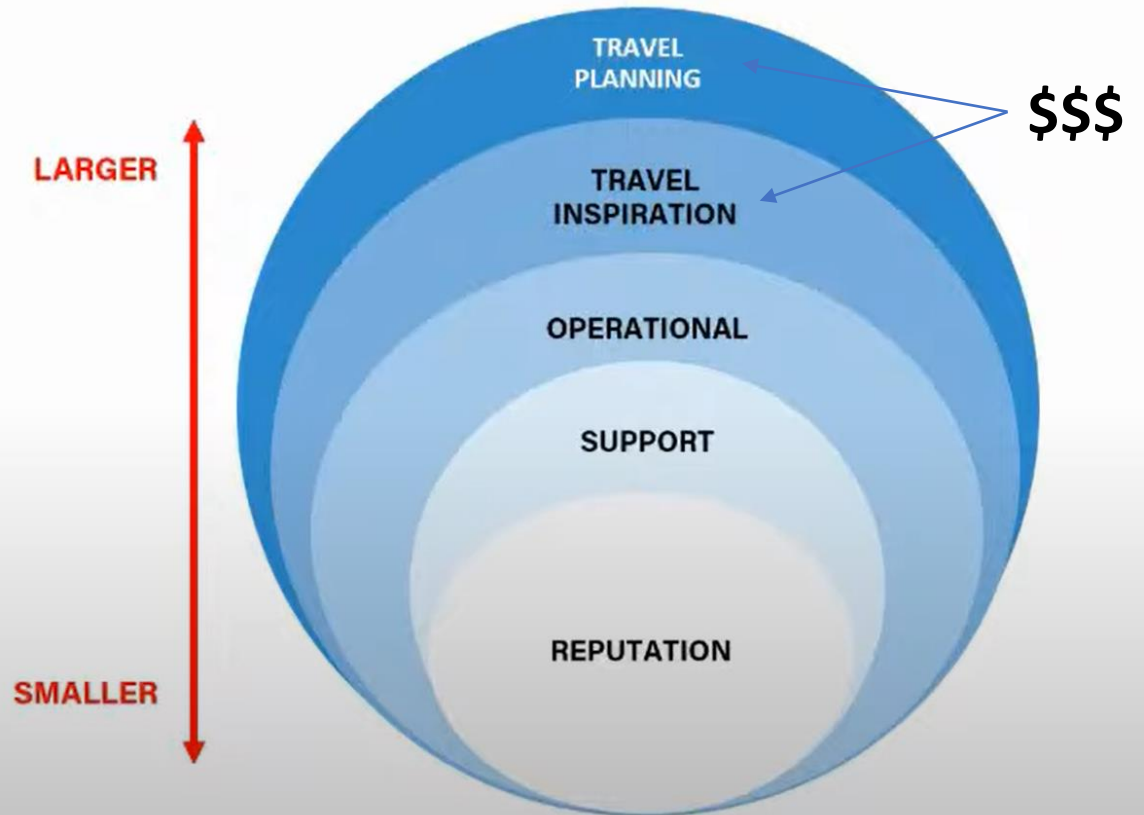
**Let's see it in action !!**

# What will get impacted with ChatGPT

## Time to Market for AI Travel Tools



## Where will AI Have the Biggest Long Term Impact on Travel?



# Travel Planning – specifics , post inspiration

*What is the lowest price family friendly hotel in Kashmir?*

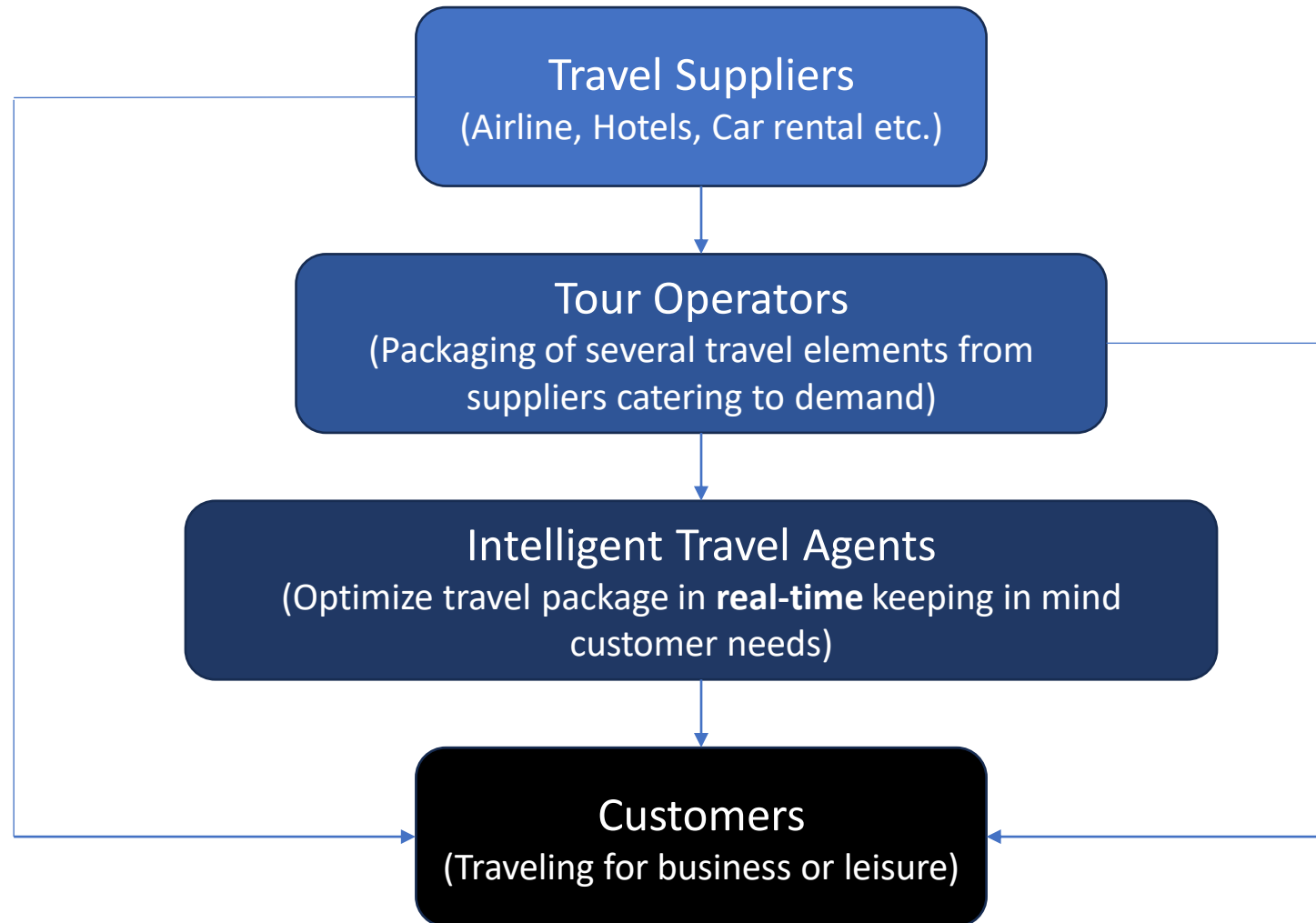
Finding the best budget-friendly family hotels in Kashmir can vary depending on your specific needs and travel dates. Here are some options to consider:

- 1. Hotel Zoon Dabb Srinagar:** Located near the Srinagar airport, this hotel offers family-friendly amenities like family rooms, a children's playground, and a picnic area, with prices starting from **USD 48**.
- 2. Hotel Solar Residency:** Recognized as the **best value among 279 family hotels** in Kashmir, it's a popular choice though specific pricing details require entering your travel dates on their website

*any good vegetarian restaurants near to hotel zoon dabb*

- 1. Stream Restaurant:** Offers Chinese and Indian cuisine, noted for its pleasant ambience and highly-rated food.
- 2. Cafe Tulip:** Known for its Indian and Asian dishes, this cafe is appreciated for its welcoming service and high-quality food.
- 3. Lacima Cafe and Pizzeria:** A great spot for Italian cuisine and pizza lovers, offering a range of dishes including Paneer Burrito and Garlic Bread

# Travel Operations – Chain of Actors



# BOT way to march towards excellence !!

**Build Phase** – playing with data and coding!

**Prompt Engineering** : make AI model to understand and respond to specific travel-related prompts.

**Fine-Tuning** : Once the basic model is in place, it undergoes fine-tuning with a company's data – in our case focused on travel and tourism.

**Chain of Thought** : model is further developed to process and generate responses in a human-like, step-by-step manner. This approach is especially useful in itinerary planning with proper reasoning



**Operate Phase** – role of “responsible” human in the loop

**Embedding**: model is operational and begins to use embeddings to interpret and respond to customer queries with external data.

**RAG (Retrieval-Augmented Generation)**: The operational model now utilizes RAG to pull in relevant information from a vast dataset, which includes travel guides, customer reviews, and other pertinent travel data.

**RLHF (Reinforcement Learning from Human Feedback)**: As the model interacts with users, it continuously learns from human feedback.



**Transfer** – role of AI replacing human in the loop

**AI BOT, now fully equipped** with the knowledge and capabilities to handle a wide range of travel-related inquiries and tasks, is ready to take over the work.

This transfer doesn't mean human agents are completely replaced; rather, **agents can focus on more complex, creative tasks** that require human insight

The transfer to an **AI BOT allows tour operators to scale their operations** efficiently. This results in enhanced customer satisfaction and operational efficiency.

Why ChatGPT and AI is going to matter so much?

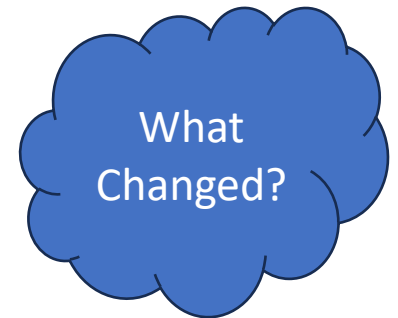


Well .. What my mother told this me when I was a kid !!

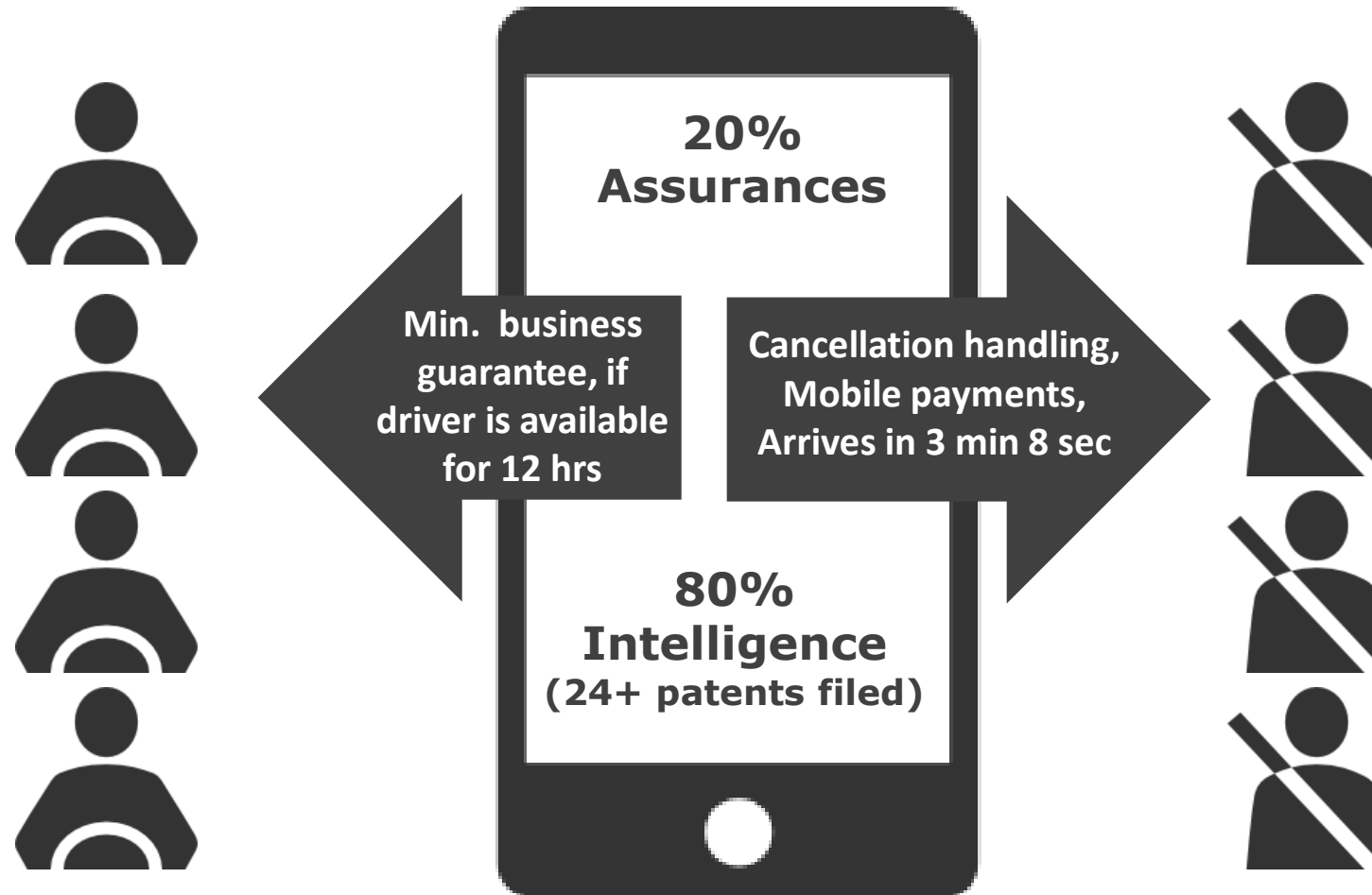
- Don't **Sit** in stranger's **car**
- Don't **Take food** from a stranger
- Don't **stay** in stranger's **house**

And I see myself exactly doing the same thing !!

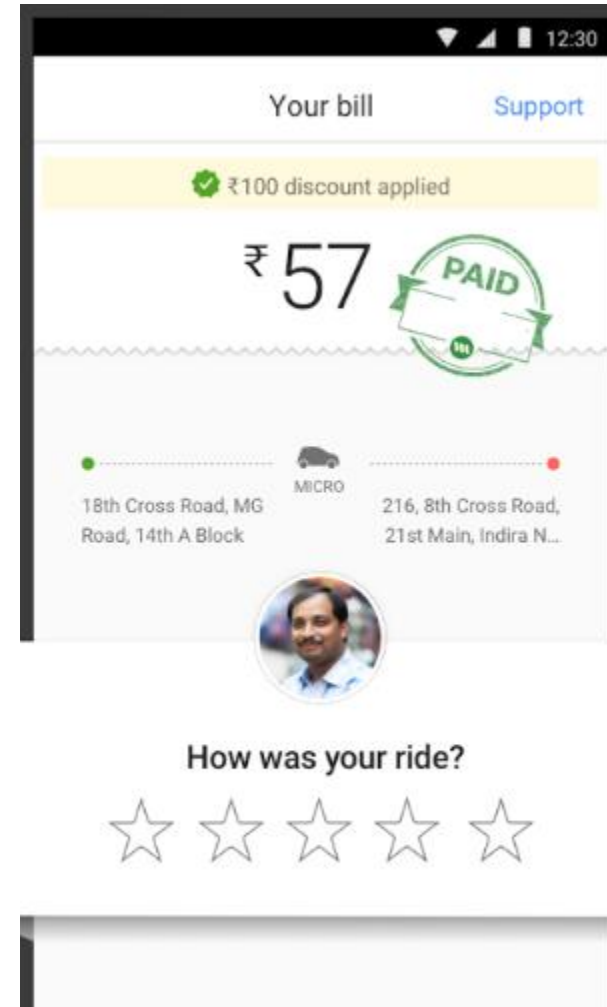
- Don't **Sit** in stranger's **car** ... .. **I Do take Uber and Ola**
- Don't **Take food** from a stranger ... .. **I Do from Swiggy and Zomato**
- Don't **stay** in stranger's **house** ... .. **I Do stay in AirBNB**



# We are all living in 3<sup>rd</sup> Wave of Trust Framework



# Transformation with Data



# AI is the 4<sup>th</sup> revolution after

- textile
- industrial
- digital

.. and it's here to stay for sure , so don't miss

# Leaving you with 3 questions??

1. Where is your “DATA” ?
2. What is the first thing you want to do for your biz with ChatGPT?
3. Who do you have in your company to take this forward?

*The illiterate of the future are not those who can't read or write but those who cannot **learn, unlearn, and relearn** – Alvin Toffler*

Thank you!

