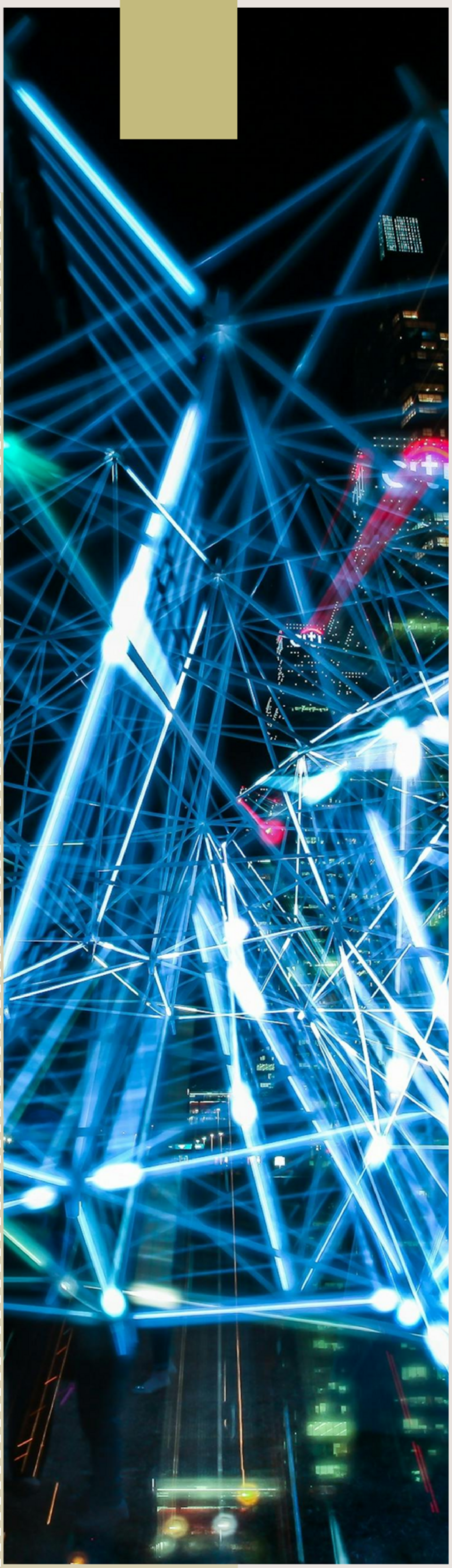

DESIGNED ANALYTICS

An Honest Guide to

Developing AI Roadmaps

How to Design Realistic AI Capability Development Roadmaps

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What is a Roadmap ?

Roadmap is the new buzzword. It is being thrown around often these days in the context of AI. Everyone wants to develop an AI roadmap for their organization.

We have a basic understanding of what a roadmap is. The reason behind that intuitive understanding is hidden in the term "roadmap" itself. A roadmap is a summarized plan of a journey. And it is this basic understanding, that will help us explore how we can develop robust and realistic AI roadmaps for our businesses, and in that process, accelerate the adoption of industrial AI.

The interesting fact is that any technology roadmap can be understood and developed using the same approach that leads to the real roadmaps i.e plans for road trips or routes. The components that go into planning ground transportation, at a high-level, also apply when planning technology roadmaps. In fact, thinking about roadmaps from this perspective will help us understand the purpose and objectives of these roadmaps better. And this will obviously also help us design better roadmaps.

Assume that you just started a trucking company. You have received your first shipment. You are parked at the client site, and your truck is being loaded. How do you plan your route or trip? There are certain components to this planning. Let us explore them.

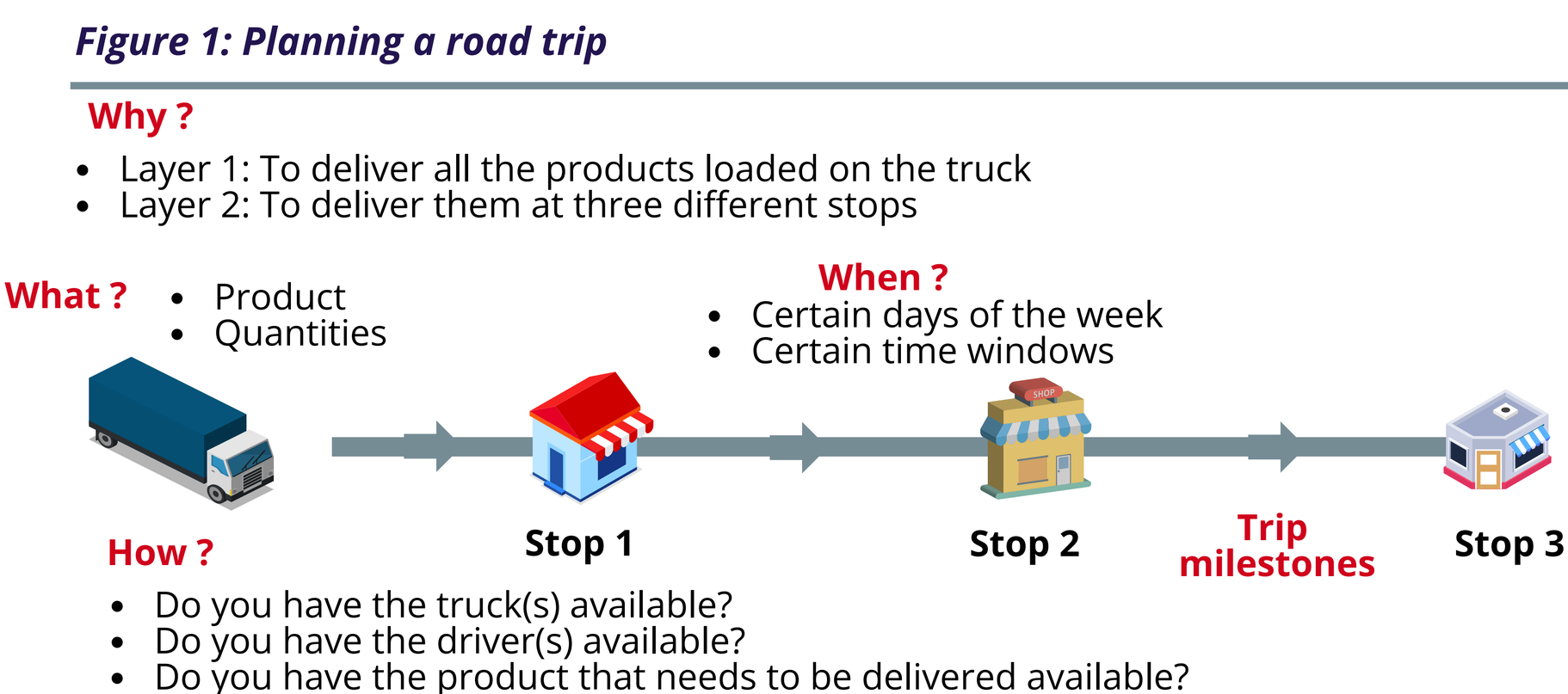
Why?

You start with an understanding of why you need to make the trip. In the real-world, the purpose of the trip is to fulfill demand at a set of locations. Let us say these are locations 1, 2 and 3, as shown in **Figure 1**. You also need to know **what** is needed to be delivered at each of these locations. This will typically be the product and quantity.

When?

Each of these locations need to be fulfilled during a specific day (or a set of days) and time windows. If you deliver outside these days and windows, the objective of making that stop diminishes in value.

Figure 1: Planning a road trip



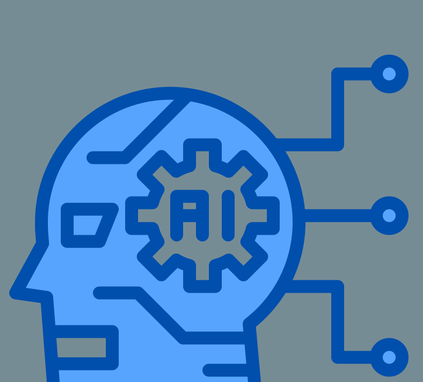
How?

Knowing the purpose of the trip is obviously just a starting point. Once you know where you need to go, when and why, the how aspect comes into play.

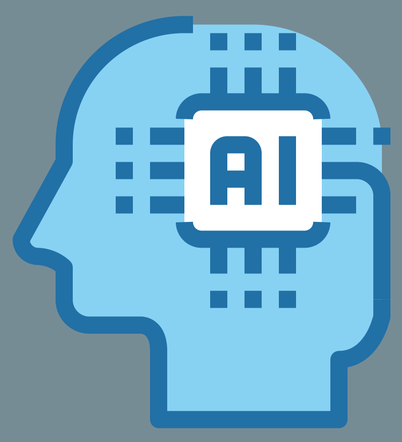
You also need to understand how you are going to make those stops for fulfillment. Some aspects you need to consider are:

- Do you have the truck(s) available?
- Do you have the driver(s) available?
- Do you have the product that needs to be delivered available?
- What is the most optimal way to cover the stops?

While the above list is not exhaustive, it should give you an indication of what the "How" category entails. Now, with the understanding of the broad components of planning a truck route, we will explore AI roadmap development process, and understand how this fundamental approach can be extrapolated there as well.



Developing the Roadmap



While there is a fog of complexity being built around AI strategy and roadmap development, at the core, it can be formulated using the exact same categories that have been defined in the previous section. Let us reformulate the decision points defined above in the context of AI strategy roadmap, and then we will explore each of them further.

Why?

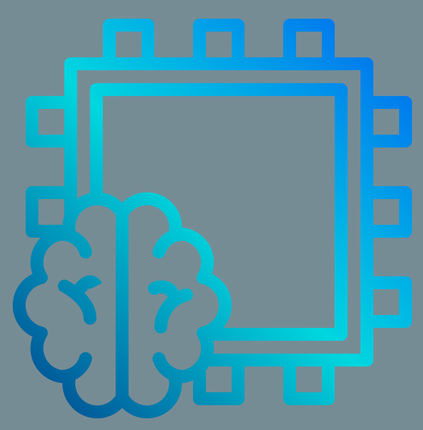
We have typically followed a chase policy when it comes to technology strategy. One excuse that has always been used is that technology evolves so fast that it is difficult to predict where it will be in next few years. Under these circumstances, how do we build mid- and long-term strategy ? In my opinion, this postulation has always been incorrect. No matter how advanced a technology is, if you follow the world of technology, you can always safely predict it with a high level of success in mid-range for sure, and a decent level at the long-term strategy level. At least in the context of Industrial AI.

The trick is to look behind the hype to understand the core of that technology. And if you are able to understand that, you can definitely predict what the boundaries of that technology are, no matter how advanced the technology is. Let us consider the example of Generative AI.

Almost five years ago, even before ChatGPT's arrival, developing an understanding of GPT and LLMs, you could tell where the technology will be in next 5 years. The pace of advancement may accelerate more or less than expected, but the general path of how far the technology will go, and can go, will not change. If an organization decided to be an early adopter back in 2019, they would have been able to build some amazing capabilities with Generative AI by 2024, following the trajectory.

Similarly, you can foretell with a high-level of certainty where Generative AI will go from here in next five years. This is the mid-term timeline. It is the long term, the 10 year timeline, where there will always be some uncertainty. And as we will see further in this white paper, you can build that uncertainty in your roadmap.

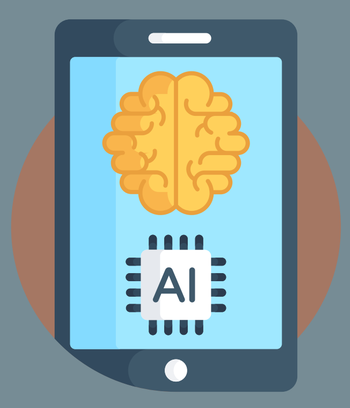
All this background is important because if you are building a roadmap, you need to know why you will be building it. This means, you need to understand what benefits you will be able to leverage from the technology five to ten years from now. And those expectations need to be realistic, based on how the capabilities need to evolve in next 5-10 years.



Let us revisit what we need for the “Why” when planning our road trip. It starts with the understanding of why you need to make the trip. And exactly in the same way, you will need to understand why you need to build your roadmap. Most roadmaps go off-road at this stage. There are standard templates that are tweaked to incorporate some organization specific lingo but the roadmap is generally vague.

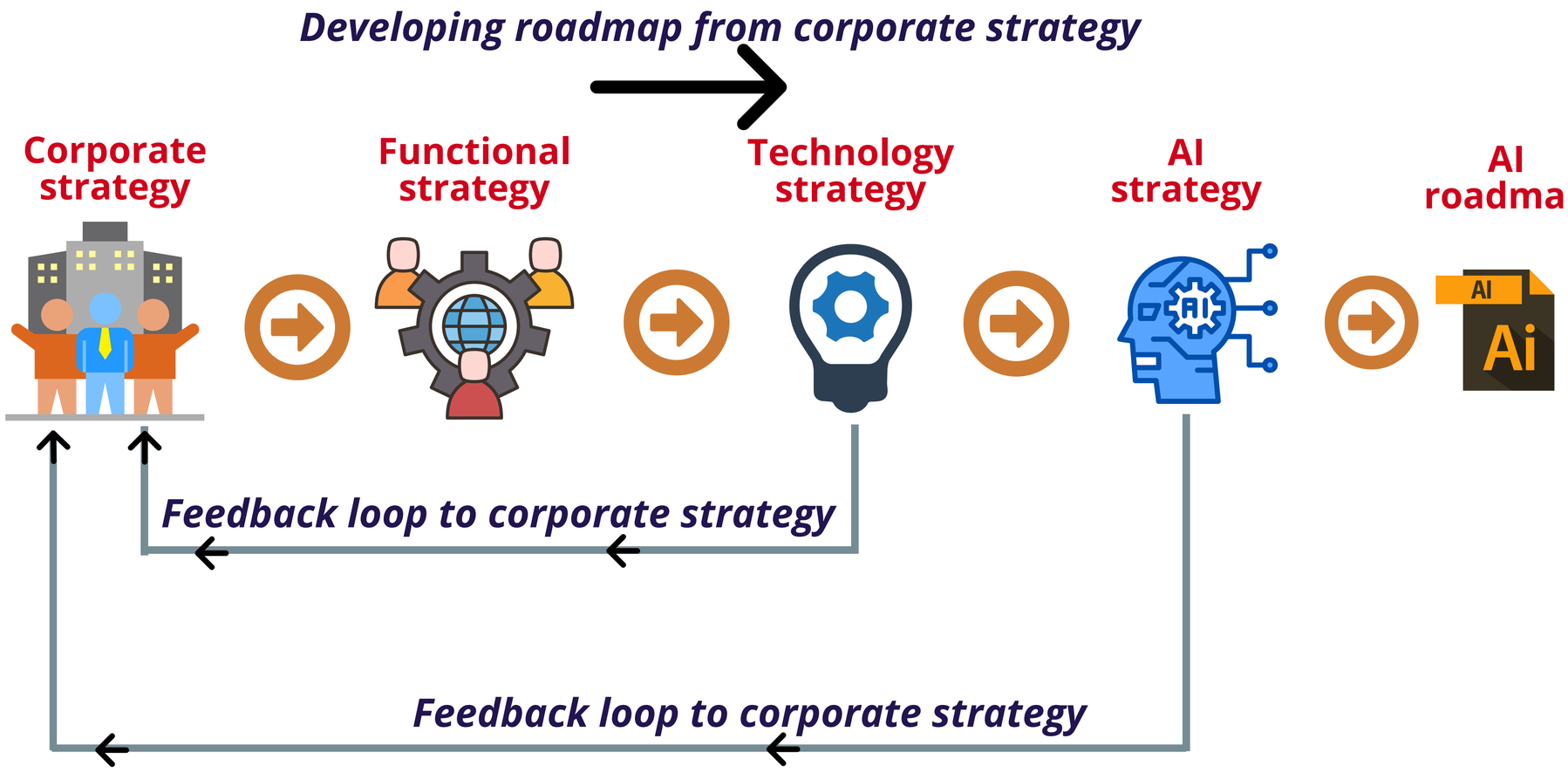
This initial "Why", is the most important aspect. And the starting point of this is almost always your corporate strategy. Corporate strategy is generally not myopic. It typically addresses next 5-10 years (if it does not, it should) of the path the organization plans to take. And since corporate strategy directly translates into your AI strategy, as shown in **Figure 2**, your initial "Why", that answers why you want to make the trip, should originate from this.

What is also critical to understand from **Figure 2** is that there is a feedback loop. While technology strategy is definitely influenced by corporate strategy, it also influences corporate strategy. If it is currently not influencing your corporate strategy, then that is a Red flag in this digital era. The logic behind this is simple. Where you want to be in few years, can be differentiating only when propelled by the advances in technology. Unless you factored those advances in formulating your mid and long-term strategy, you can not possibly frame your journey accurately.



Let us understand this with the help of an example. If you are a fashion retailer, your corporate strategy is heavily influenced by design and marketing. These two drive the core aspects, supported seamlessly by your supply chain. If you are formulating your corporate strategy today, you will have a vision of your marketing capability few years from now, that you wish to achieve. Generative AI is definitely going to transform marketing few years from now. And without incorporating that aspect, you cannot formulate a creative mid-term corporate strategy. This approach can be applied to any industry. The fact is, in today's age, you cannot formulate a robust corporate strategy without an understanding of technology progress trajectory, and integrating that in strategy formulation.

Figure 2: AI Roadmap development process

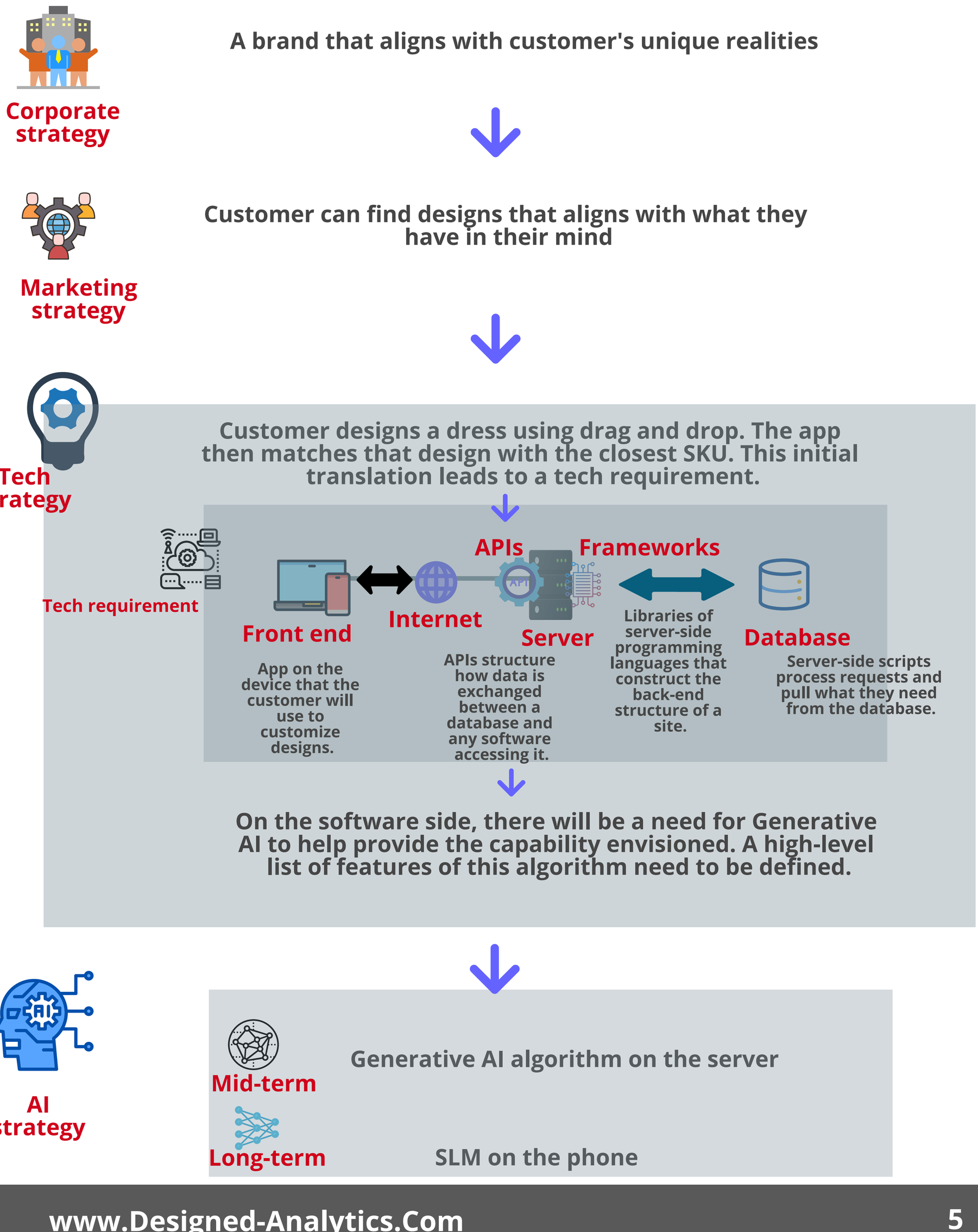


Once you have your initial "Why", you can start filling in the details. "Why" is the purpose of the roadmap. In our road trip example, we had the stops, 1,2 and 3, that fulfilled the purpose of the “Why”, which was to serve a set of customers. In our case, once we know the “Why”, we know that this "Why" will be achieved by successfully serving stops 1, 2 and 3. And these three stops, in our case, are short-term, mid-term and long-term milestones.

If we go back to our trucking example, we know that the purpose of the trip is to fulfill demand at three locations. But the overall objective is that you want to deliver the products that are currently loaded on your truck ("What"). The three stops are the second layer of "Why". The same approach holds for the "Why" component of AI roadmap formulation as well. The load on the truck is akin to the resources you need to load to meet your milestones, in terms of people, processes and technology.

Let us understand it with the help of an example. The example has been illustrated in **Figure 3.**

Figure 3: An example of translating corporate strategy into AI strategy



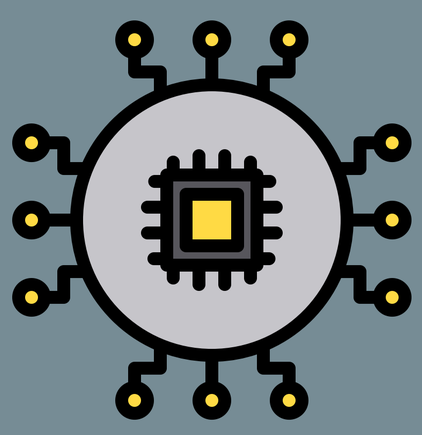
As you can see in the **Figure 3**, once we get from corporate strategy to technology strategy (which first begins with the technology requirement derived from the functional strategy), the nuances of AI strategy start emerging.

These nuances emerge from the technology strategy.

This is one of the reasons I insist that we need more people with a balanced skillset of technology and strategy. A technology requirement can be translated into a high-level initial architecture, as shown in **Figure 3**. This high-level architecture will become the blueprint for finalizing the technology strategy.

In this example, marketing has decided to possess a capability that will allow customers to use an interface and/or augmented reality, to design their own fashion. Once they have the design, an algorithm can search the assortment to find a design closest to what the customer has designed. This is the closest you get to hyper-personalization, without actually doing hyper-personalization.

From your knowledge of Generative AI, you know that this can be done within the realm of current Generative AI technologies. And this is the begining of your technology strategy. The requirement is to leverage Generative AI to allow customers to find fashion that aligns with their unique nuances. The strategy, is to develop a Generative AI model, and deploy it within the architecture shown.



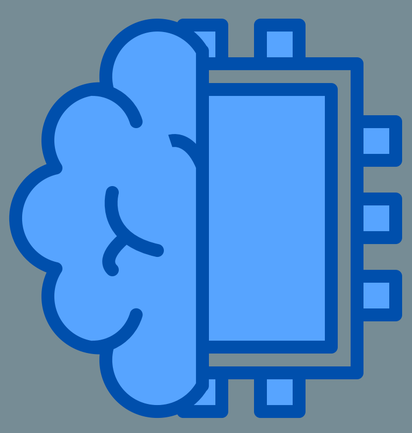
Since the technology requirement pertains to AI, these get carried into the AI strategy, as the starting point. Within the AI strategy bucket, you work more on this strategy. You realize that in the context of current maturity, the most feasible way is to build and deploy and algorithm on the backend server, shown in the architecture.

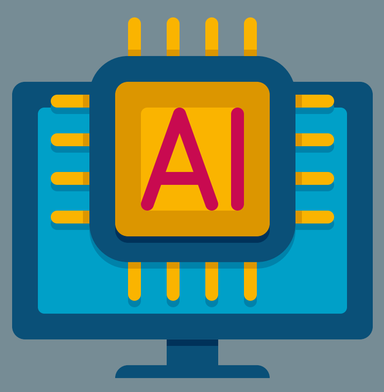
This becomes your mid-term (3-5 years) strategy.

You want to master this aspect in this time frame. You know from your knowledge of Generative AI landscape that work is already afoot on LMs for edge devices. And ideally, you would want this on the edge device itself, since it will be able to do lot more that the semi-hyper-personalization of fashion.

This becomes a long-term (8-10 years) AI strategy.

Beautiful journey. Isn't it? Now, as shown in **Figure 4**, these two components of AI strategy from **Figure 3**, get included in the AI roadmap canvas.





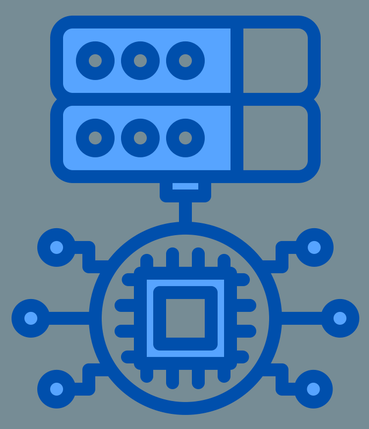


Figure 4: Populating roadmap from AI strategy

You can assume that the above three elements will obviously not be the only ones on the roadmap. Every technology requirement, that leads to an AI strategy, will eventually add such elements to the roadmap. Now that you know how to get to the tasks on hand on your roadmap, you will now decide upon the timelines of your roadmap milestone.

When?

Once you have the “Why”, things become a bit easier but still need strategic insights. Your "Why" also decided the milestones or stops on your roadmap. Depending on the capabilities you want to use as indicators of success, you will assign timelines to these stops. To illustrate this, let us leverage **Figure 4** and explore the "When" aspect. While a general approach of 3-5 years mid-term and 8-10 years long-term work ok, the timeline depends on your current capabilities.

For example, in order to understand your current state requirements to build in-house Generative AI talent, you will get an understanding of where you are. If you are starting from scratch, then you will obviously take longer to get to your mid-term milestone. If you already have Generative AI talent and have been experimenting with Generative AI, you will reach your mid-term milestone faster.

There is also an external factor to take into perspective. If you believe your competitors may also be embarking on similar journey, you would want to invest more in the short-term to accelerate the journey.

How ?

Since the whitepaper is focused on roadmap development, how you will execute the tasks on your roadmap is not within the realm of this whitepaper. However, if you have followed the process defined above, it should have taken into view your current capabilities, while defining the "When". And this should help you develop your "How" aspect much faster.

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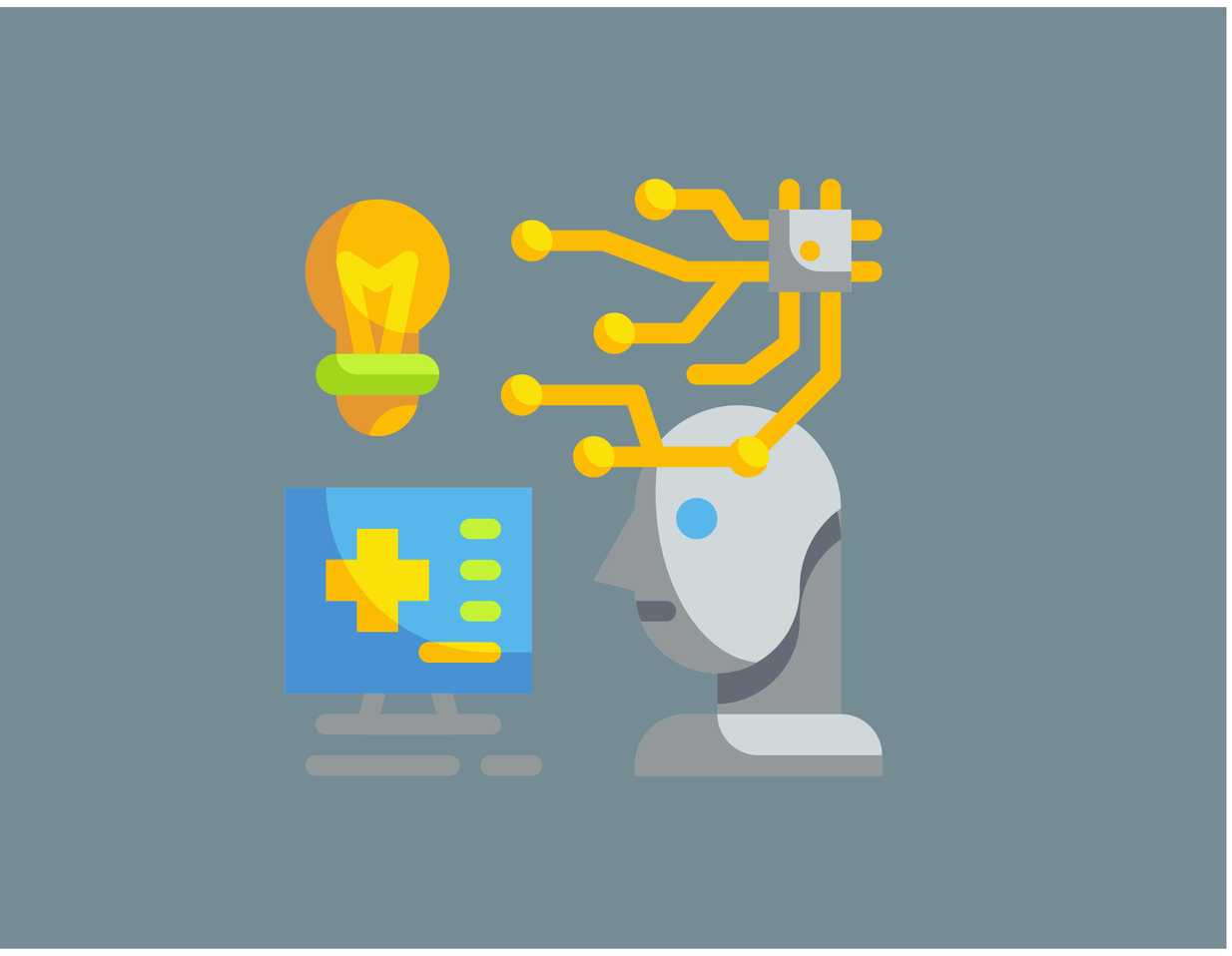

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