4,000km to Orchestration Excellence

Matt Spooner, Industry Thought Leader at Kinaxis, offers a unique perspective on the intersections between his two passions: supply chain management and extreme sports.

His thorough strategy saw him safely arrive back at sea level

In August, I took part in the Transcontinental Race (TCR), an epic 13-day self-supported 4,000km cycling race from Belgium to Greece. The Transcontinental is a single-stage race in which the clock never stops. Riders plan, research and navigate their own course and choose when and where to rest. They take only what they can carry and consume only what they can find.

While preparing for the race, I realised my experience as a supply chain professional would give me a significant competitive advantage. After all, I understand the value of thorough planning and prepping for the unexpected as much as possible. What I didn't anticipate was that during the course of doing the TCR, I would gain new insights into supply chain management and how technology is a game changer.

Here are the three primary topics that I discovered were relevant to both the world of ultra cycling and world-class supply chain management:

1. Have a great strategy with clear vision and realistic goals

2. Utilise AI, optimisation, heuristics and scenarios to create a rigorous plan

3. Connect planning and execution systems to provide the agility to respond to unplanned events

Start with a Strategy

A plan without goals is not worth having, a goal without a plan is just a wish. A realistic strategy is essential – it should reflect both capability and resource availability. For the TCR, the process to set my goals was iterative: Even though I have lots of experience with ultra racing, I did several training rides to determine my limits. This included a weekend riding 700km in the mountains with a fully-loaded bike, and a second non-stop ride, where I covered over 800km in 24 hours. Based on this data, I was confident to set a goal of completing TCR in 12 days, which fell within the 15-day time limit imposed for the race.

From a supply chain perspective, setting achievable goals is just as important. These goals must reflect the appropriate level of supply chain maturity and capability, aligned with the corporate strategy. The S&OP or IBP process is the perfect forum for setting these goals because the supply chain, sales and marketing and product management teams all have a stake in agreeing whether the goals are achievable.

Using Technology

Once I'd determined my goal of completing the TCR in 12 days, the next step was to create a detailed plan. Planning software Komoot uses AI and optimisation to rapidly develop

an initial biking route, which is 90% correct. However, the other 10% of the planning includes factors that Komoot doesn't consider. For example, does the optimised route pass through mountains that may increase fatigue? Are there shops, water stops and hotels on the planned route? What will the temperature likely be on the route?

This is where the human element is important. I drew on my experience and details I could track down and modified the route to create a plan which met my personal requirements.

The next stage was to upload a library of data from my previous rides into another system called BestBikeSplit, which analyses my ride history with machine learning to create an accurate prediction of my riding speed in different conditions. The software was able to forecast how much distance I would ride each day. At the end of the process, I had a clear goal and detailed plan broken into daily targets.

Matt at Stelvio Pass – the 2nd highest pass in the Alps

The final planning stage was to repeat the process for several different scenarios. In any plan, there is uncertainty, such as weather, traffic conditions and border crossing opening hours. That's where a risk assessment exercise comes in so you can create scenarios to mitigate these risks. Next you need a decision-making framework so that you can easily determine when to use the alternative scenario, rather than the original plan.

This process is reflective of best practices in supply chain planning – the combination of advanced optimisation, machine learning, and heuristics paired with the experiences of a planner will result in a better-quality plan or more accurate forecast. Today, many of the repetitive planning tasks are automated, allowing the planner to focus on adding value in areas where the technology is insufficient. Planners also have an important role in determining when to create scenarios and when those scenarios should be used.

Agility Along the Way

In both ultra racing and supply chain management, there is always a temptation to overplan – even more when presented with vast arrays of additional information. One example of this was trying to plan hotels on my route. If I carefully planned out that phase, it could save money and provide a sense of security. However, despite having a great forecast, the level of uncertainty that I'd be in a particular location at specified times was too high.

Rather than overplanning, clear tactics and agility will help overcome uncertainty. As an example of this, I planned a route with lots of lodging options, so I was confident that I would be able to find a hotel every night. In the supply chain, the same concepts apply. Overplanning consumes too much time and even worse, it can shackle you to following a poor plan even when it no longer remains the best course of action. The level of disruption we've faced over the past three years demonstrates that organisations must be agile. However, I feel that many organisations do not yet have a playbook or clearly defined tactics regarding how to deal with disruption.

Matt had thoroughly planned and prepped for the unexpected!

On the ride itself, most riders upload their plans into a GPS device, which is essentially an execution system. I took a different approach. I had a Garmin GPS device, which I used for navigation, but I had Komoot, my planning system, running in parallel on my phone next to my GPS – essentially running a digital twin. This proved to be an inspired decision. There were multiple times every day where I deviated from the original plan. Perhaps a road was closed, or the quality of the planned road was very poor, or the road's layout did not correspond to the map. Most days I needed to go slightly off my planned route to find a hotel.

Running a digital twin empowered me to rapidly run a new scenario every time I needed to decide. If that scenario was feasible, I could digitally transfer it to my execution system. This process of re-planning could normally be done in a few minutes.

The ability to rapidly create, evaluate and execute scenarios in real time is probably the most significant recent development in supply chain management, especially when the planning and execution systems are connected. In a well-run supply chain, each disruption should be evaluated using a scenario and when a course of action is agreed, both the planning and execution systems are updated in real time. Without this constant alignment, organisations rapidly see significant deviation between the plan and what is actually happening.

Improving on Past Performance

Even with the best planning strategies and agility along the way, there's always room for improvement. My greatest frustration during the race was the lack of integration to find hotels. Each day around 6.00pm, I searched for a hotel approximately three to four hours from my location. Due to a lack of integration between my planning system and hotel search apps, the process was highly inefficient. I was often forced to take a "low-risk" approach and stop earlier than I would have liked. It was time-consuming to add the hotel location to my planned route. If hotels were integrated into the planning system, I estimate I would have finished the ride around one day (8%) earlier.

The lack of integration is very prevalent in most supply chains and is a significant source of inefficiency; however, it's an invisible issue to most organisations. Different supply chain functions operating in siloes responsible for their own systems are largely unaware of the issue, which leads to extended execution times and the need for inventory buffers.

In this year's Transcontinental Race, 350 riders started and I was one of 120 who finished within the cutoff time. I was successful because I had clear goals, a well-constructed plan and the agility to react to events.

It transpires that orchestrating supply chains is remarkably similar to planning and racing 4,000km across Europe. By leveraging advances in technology, competitions like The Transcontinental Race have become safer and more accessible. In the supply chain, advances in technology are helping to create more efficient and responsive supply chains. The next challenge is supply chain orchestration, where systems are even more integrated, and functional siloes demolished. The road to more efficient, optimised supply chain management has never been in better shape and it's exciting to envision the journey along the way.

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