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HELiiX FlexTime – Executive Briefing & Implementation Plan

Strategic Opportunity for the Big 12 Conference

- **Capitalizing on Expansion & Complexity:** The Big 12's recent expansion to 16 teams across a wider geography creates scheduling challenges but also a strategic opportunity. Advanced scheduling can mitigate the *"logistical nightmare"* of teams traveling farther than ever [1], reducing athlete fatigue and costs, while turning complexity into a competitive advantage.
- **Maximizing NCAA Tournament Success:** The Big 12 is already known as the *"king of college basketball,"* often sending 7–8 teams to the NCAA Tournament annually [2]. Each additional tournament bid is lucrative (the NCAA awards units worth ~$2M each per game played [3], with the Big 12 earning ~$40M from 20 units in 2025 [4]). By smartly optimizing schedules, the conference can push even more teams into March Madness and improve seeding, directly boosting both prestige and revenue.
- **Differentiation & Competitive Edge:** A data-driven, **NET-centric** scheduling platform positions the Big 12 ahead of other leagues. It institutionalizes the kind of smart scheduling that observers believe the Big 12 has already been doing ad-hoc to *"help their NET…used to determine the field for the NCAA Tournament"* [5]. Embracing HELiiX FlexTime now allows the Big 12 to set a new standard for strategic scheduling, outpacing competitors like the Big Ten and SEC in innovation.
- **Enhanced Media Value:** Optimized scheduling means more high-profile matchups at optimal times. By leveraging HELiiX to align games with television windows and avoid overlaps, the Big 12 can drive higher TV ratings and fan engagement. (For example, intelligently scheduling matchups has been shown to increase viewership by over 20% in other leagues [6].) This boosts the value of current and future media contracts, turning the schedule into a revenue-growth lever.
- **Holistic Benefits:** In sum, the Big 12 has a strategic opening to use technology for *both* competitive gain (more tournament bids, better on-court performance) and operational efficiency (travel savings, player welfare). Few initiatives touch so many aspects of the conference's mission – HELiiX FlexTime is a chance to strengthen the Big 12 on the national stage while improving day-to-day logistics for teams.

Competitive Positioning – HELiiX vs. Faktor/KPI vs. Fastbreak AI

To ensure success, HELiiX FlexTime must outperform existing scheduling solutions. Below is a high-level comparison of HELiiX's positioning against two known approaches:

Aspect	HELiiX FlexTime (Big 12's Platform)	Faktor/KPI (Kevin Pauga's System)	Fastbreak AI (Commercial Platform)
Focus	Big 12-specific; maximize NCAA outcomes (NET rankings, bids, seeding) and conference goals.	Broad conference scheduling for many leagues; focuses on competitive balance and logistics (Kevin Pauga Index metric and other inputs).	Professional and collegiate scheduling with emphasis on logistics (travel, venues) and broadcast requirements.
Optimization Approach	AI-driven, multi-agent system for dynamic scheduling; real-time optimization and scenario re-calculation.	Algorithmic model with significant human expert adjustments [7]; Pauga personally fine-tunes schedules.	Fully automated AI optimization with rule-based constraints; real-time adjustment capable [8] [9] (offered as a SaaS product).
Key Strengths	Tailored to Big 12 needs and NCAA criteria (NET-centric); adapts quickly to changes; conference retains control and IP.	Widely adopted (supports ~2/3 of D-I conferences' scheduling) [10]; proven track record of balancing complex inputs; backed by deep expert knowledge.	End-to-end platform with user-friendly tools; strong travel optimization and media scheduling features (e.g. prevents big game TV overlaps) [11]; collaboration features for teams/venues.
Potential Gaps	New and unproven at full conference scale until first use; requires upfront development investment and change management.	Not explicitly designed for maximizing NCAA bid metrics; reliant on one expert's availability and manual tweaks; less flexibility for real-time changes.	One-size-fits-all solution may not capture Big 12's unique strategic goals (e.g. NCAA metrics focus); using an external system means less customization and dependency on vendor for updates.

HELiiX FlexTime's Edge: By focusing on NCAA tournament criteria (which neither Faktor nor Fastbreak explicitly do) and by employing a flexible multi-agent AI approach, HELiiX aims to combine the best of both worlds – the intelligence and adaptability of a modern AI platform with the college-specific savvy that an expert like Pauga brings. HELiiX will differentiate itself by actively *improving competitive outcomes* (not just creating a convenient schedule) – a key value proposition for Big 12 executives that generic tools cannot match.

Core Innovations and Differentiators

- **NET-Centric Scheduling Algorithm:** HELiiX FlexTime is built around the NCAA Evaluation Tool (NET) and related selection metrics. Unlike generic schedulers, it will deliberately craft the conference schedule to enhance each team's resume (e.g. ensuring ample Quadrant 1 opportunities, avoiding scheduling traps that lead to bad losses). This NET-centric approach means the Big 12 schedule isn't just balanced and fair – it's *strategically optimized to boost NCAA tournament profiles.* Even rival

coaches have observed that smart scheduling can *"help…NET…which is used to determine the field"* [5]; HELiiX formalizes that advantage for the Big 12.

- **Multi-Agent Adaptability:** A standout feature of HELiiX is its multi-agent system design. Instead of a single algorithm making decisions in a vacuum, HELiiX simulates multiple intelligent agents each representing different stakeholders and objectives – for example, a "Team agent" for each school (prioritizing proper rest and competitive fairness), a "Broadcast agent" (maximizing TV viewership and accommodating TV slots), a "Travel agent" (minimizing travel distance and disruptions), etc. These agents interact and negotiate within the platform, allowing the schedule to self-adjust to satisfy all constraints as much as possible. This adaptability means if one aspect changes (say a venue availability or a new TV request), the system can **re-balance** the schedule on the fly. The multi-agent approach brings a flexibility and resilience that one-size-fits-all algorithms lack – effectively, the schedule can *evolve in real time* in response to inputs, much like a team of experts continuously tweaking it, but in an automated way.
- **Real-Time Optimization Engine:** HELiiX FlexTime will incorporate a real-time optimization loop. In practice, this allows two key capabilities: **(1)** rapid re-optimization and scenario planning, and **(2)** potential in-season adjustments (if the conference ever chooses to use flex scheduling late in the season). The engine can generate optimized schedules or revisions in minutes when presented with new data or constraints. For example, if a week before release a few game dates must change or a new priority emerges, HELiiX can quickly re-calc an optimal revision (whereas traditional methods would require hours of manual rework). Fastbreak AI advertises *"adaptation to last-minute changes effortlessly"* [9] – HELiiX will match this capability, tailored to Big 12's context. Moreover, real-time modeling opens the door to *what-if analysis*: conference executives can ask, "What if we emphasize travel reduction more, or ensure these two teams meet in the final week?" and see the schedule outcome immediately, enabling data-driven decision-making about trade-offs.
- **Adaptive Learning & Improvement:** (Planned for future enhancement) The platform is designed to learn from outcomes. Over time, it can incorporate machine learning that learns from past seasons – for instance, how did the scheduled games impact NET and bids versus expectations? This means HELiiX's recommendations will get smarter each year, identifying patterns that lead to more NCAA success and refining its multi-objective criteria accordingly. *(This is a forward-looking differentiator that competitors have not signaled, and while not in the initial delivery, it underpins the long-term value of the platform.)*

High-Impact Benefits of HELiiX FlexTime

- **More NCAA Bids for Big 12 Teams:** By optimizing the schedule to elevate all teams' profiles, the Big 12 can expect more teams to meet the NCAA selection criteria. For example, HELiiX will aim to ensure that bubble teams get enough quality win opportunities and that top teams aren't dragged down by scheduling quirks. Even one additional at-large bid is significant – it not only underscores the Big 12's strength but also brings tangible financial rewards (each March Madness game a team plays earns a ~$2M "unit" for the conference [3]). In recent seasons the Big 12 has placed ~7-8 teams in the tournament; a strategically optimized schedule could bump that higher, closing the gap with the Big Ten/SEC (one of which got a record 14 bids in 2025 [12]). More bids also mean a greater chance of deep runs by multiple teams, reinforcing the Big 12's reputation.
- **Improved NCAA Seeding & Postseason Performance:** Not all tournament bids are equal – seeding often dictates how far teams go. HELiiX will help Big 12 teams earn higher seeds by managing strength of schedule and spacing of tough games. Teams will accumulate strong records **and** metrics, avoiding situations like a gauntlet of games that might cause a mid-season slump (which

hurts seeding). The result is that Big 12 champions and contenders are more likely to be 1-3 seeds rather than 4-6 seeds, for example. Higher seeds have easier paths in March, leading to more Sweet 16s and Final Fours for the conference. In short, the platform turns the regular season schedule into a tool for postseason success – maximizing the odds of Big 12 teams playing deep into the tournament (and collecting more NCAA units in the process [4]).

- **Media Revenue Lift:** A smarter schedule will yield more **TV-friendly games** and storylines, which translates to higher ratings and media value. HELiiX will factor in television partner preferences – for instance, ensuring that major rivalry games or top-25 matchups occur at times of the week with the largest audiences and that they don't directly compete with each other for viewers. According to industry data, aligning schedule timing with audience demand can significantly boost viewership (one professional league saw a >20% jump in TV audience by optimizing matchups timing [6]). For the Big 12, even a single high-profile game moved to a prime slot can mean hundreds of thousands of additional viewers and a stronger negotiating position in the next TV contract. Over a season, the cumulative effect of optimized scheduling could mean millions more eyeballs and a measurable uptick in advertising and rights value. In addition, by avoiding overlap of big games, HELiiX will help maximize in-person attendance and keep fans engaged throughout the season, further enhancing revenue streams.
- **Travel Efficiency and Cost Reduction:** HELiiX FlexTime will drastically improve travel logistics for Big 12 teams. With schools now stretching from West Virginia to Arizona, travel burdens can hurt both budgets and player energy. The platform's optimization will include minimizing total travel distance and frequency of long trips. For example, if West Virginia needs to play BYU and Utah (two of the farthest trips) in the same season, the system might schedule those in one back-to-back road swing to avoid two separate cross-country flights. It can also identify opportunities for creative solutions like having nearby teams travel together or coordinate charter flights when feasible. The expected outcomes are lower travel costs (less flights/hotel nights overall) and more efficient itineraries (e.g., a road trip that hits Texas Tech and Baylor in one go rather than two separate Texas visits). These efficiencies not only save money but also reduce wear and tear on student-athletes. The time saved from travel can be reallocated to academics or rest, an ancillary benefit for the institutions.
- **Enhanced Player Welfare & Performance:** The schedule directly impacts player health and performance. HELiiX will enforce constraints for adequate rest (e.g., aiming for no team having to play with <48 hours rest between conference games, unless absolutely unavoidable). As an illustration of why this matters: an AI-optimized schedule in another league eliminated instances of teams playing with fewer than 5 days rest and saw a subsequent drop in player injuries [13]. While college basketball has fewer games, the principle stands – proper spacing between games helps prevent fatigue-related injuries and burnout. By optimizing game sequences (home/away balance, avoiding too many high-intensity games in a row), HELiiX helps players stay fresher. Fresher players perform better on the court and remain healthier over the season. This also ties back into performance: teams at full strength and peak fitness are more likely to win non-conference games (improving the league's overall profile) and to be playing their best basketball in March. Furthermore, from a student-athlete well-being perspective, reducing excessive travel and hectic swings demonstrates the conference's commitment to its players' welfare, which is a core strategic concern for any collegiate sports organization.

Strategic Risks and Recommended Mitigation

- **Stakeholder Buy-In and Change Management:** A new AI-driven scheduling approach represents a change from traditional methods, and some coaches, athletic directors, or administrators might

distrust a "computer" making the schedule. There's risk of pushback if certain teams feel disadvantaged by an unfamiliar system. **Mitigation:** Proactive engagement and transparency are key. Involve coaches and ADs early by **showcasing HELiiX prototypes and soliciting input** on priorities (essentially feeding the multi-agent system with their concerns). Emphasize that HELiiX is a tool that *incorporates* their input – not a black box. The Big 12 can form a small advisory panel of respected coaches/administrators to review draft schedules side-by-side with current scheduling practices, to validate fairness. Additionally, allow for a *manual review/override period* in the first year: once HELiiX produces the schedule, give teams a chance to flag any major concerns, and adjust if necessary. This safety valve will build trust that the conference isn't ceding complete control blindly to a computer. Over time, as the platform proves itself (e.g., no one has egregiously unfair travel or stretches), stakeholders will grow confident in it.

- **Perception of Fairness and Integrity:** If HELiiX heavily optimizes for postseason metrics, some may accuse the Big 12 of "gaming the system" (e.g., scheduling too favorably for certain teams). There's also the external optics: other conferences or media might scrutinize if the Big 12 is explicitly trying to rig schedules for more bids. **Mitigation:** Maintain a **transparent set of scheduling principles** (made public or at least clear to all member schools) – such as: every team plays an equitable mix of opponents home and away over a multi-year cycle, top contenders won't get excessively easy schedules, etc. The optimizations for NET should operate within a *fairness envelope* defined by the conference. By communicating that "we use advanced tools to ensure fairness *and* maximize everyone's opportunities," the Big 12 can position HELiiX as an enhancement to integrity rather than a scheme. If confronted, one can point out that it's analogous to what smart human schedulers already do, just more consistently. Also, by sharing some non-sensitive outputs (for example, showing that travel miles are reduced by X% or that every team gets at least Y days rest around finals week), the conference can highlight the *fairness and welfare benefits* rather than the postseason gaming aspect. Internally, careful monitoring is needed to ensure no unintentional bias (e.g., always favoring certain teams) – the multi-agent system's weighting can be audited and adjusted if any pattern of imbalance is detected.
- **Algorithmic or Technical Risks:** As with any complex software, there's a chance of bugs or unforeseen outcomes. A small error in constraints could, for instance, schedule a team for two games on the same day or other embarrassing mistakes, or the optimization might initially miss a critical rivalry consideration. **Mitigation: Extensive testing** is non-negotiable (see rollout plan). Before anything is official, run the algorithm through past seasons and have staff comb the outputs for issues. Use 2024-25 as a dry run: feed in that season's parameters and confirm HELiiX produces a sensible schedule (ideally matching or improving what was actually used) before trusting it with 2025-26. During development, adopt a robust QA process: every time the code is updated, run a battery of test scenarios. It's also wise to have a *backup plan* – e.g., Kevin Pauga's services or the previous scheduling process on standby – in case a critical flaw is discovered late. However, with phased milestones, we anticipate catching issues early. Additionally, incorporate **manual oversight** as a feature, not a bug: HELiiX should output not just a schedule but also a report of constraint satisfactions and key metrics (so humans can verify everything looks right). By August 2025, the goal is zero surprises – the schedule should meet all known constraints and quality checks, giving leadership confidence to approve it.
- **Timeline Pressure:** Delivering a fully functional platform by the August 2025 deadline is an aggressive timeline. Any slippage in development could mean the tool isn't ready for the 2025-26 scheduling cycle, forcing a reversion to old methods and a loss of momentum. **Mitigation:** Follow a **strict project timeline with phased deliverables** (outlined below) to ensure no aspect falls behind. Assign dedicated resources to this project – it cannot be one developer's side task. If necessary, bring in outside help (e.g., consultants who specialize in optimization or NCAA scheduling) for the heavy

algorithm work to meet deadlines. The project manager should conduct bi-weekly check-ins on progress. Also, avoid scope creep: focus on the core features needed for August 2025 (even if that means some "nice-to-have" aspects, like a fancy user interface or certain dashboard elements, are slated for post-launch). By locking down core requirements and using an agile approach, the team can iterate quickly and visibly. Additionally, keep Big 12 leadership informed through milestone reviews – this keeps urgency high and allows intervention (like adding resources) if any risk of delay emerges.

- **External Environment Changes:** Several external factors could change between now and implementation: NCAA selection criteria might be tweaked (for instance, the committee could de-emphasize NET or add new metrics), other conferences might adopt similar tools leveling the playing field, or unforeseen events (like another pandemic or major scheduling disruption) could arise. **Mitigation:** Build HELiiX with **flexibility** – the system's parameters for what it optimizes (NET, travel, etc.) should be easily adjustable so if NCAA criteria change, the model can adjust without a total rewrite. Maintain contacts with NCAA officials or basketball pundits to stay ahead of any coming changes to selection criteria or rules (e.g., if the NET formula changes or if there's talk of scheduling guidelines). The multi-agent architecture actually helps here: new "agents" can be introduced or re-weighted to address changing priorities (for example, if a "Player academics" factor becomes important, that agent's weight can be increased). As for competitors catching up, the Big 12 should plan to **continuously improve** HELiiX (see Roadmap) – this is not a one-time advantage but a new capability that we'll keep enhancing to maintain our edge. By the time others try to replicate it, we aim to be on the next version with even more advanced features (like predictive analytics and full ecosystem integration). Finally, for black swan events (like COVID causing game cancellations), HELiiX's real-time engine serves as a mitigation: it can recalc schedules or multiple scenarios quickly, providing agility in crisis when manual methods would struggle.

Implementation Plan (Timeline to August 2025)

The following implementation plan outlines the timeline, key phases with deliverables, team resource needs, testing strategy, and the post-launch roadmap to ensure HELiiX FlexTime is delivered on time and continues to evolve into a cutting-edge Big 12 asset.

Timeline & Milestones by Phase

- **Phase 1 (Q4 2024) – MVP+ Prototype:** *Objective:* Build a minimal viable product of the scheduling platform with core functionality.
- **Deliverables:** Basic scheduling engine that can generate a plausible Big 12 schedule meeting fundamental constraints (e.g., correct number of games, no obvious conflicts). This MVP should include a rudimentary user interface to visualize the schedule and an initial integration of NET data for testing purposes. "Plus" features beyond a bare MVP might include simple travel calculations or a basic rules engine to handle things like rivalry games or blackout dates.

- **Milestones:** By **December 2024**, produce a sample 2025 conference schedule using the MVP engine. This schedule will be used as a proof of concept to demonstrate HELiiX's potential. Key success criteria: the schedule meets all hard constraints (no team over-scheduled or double-booked, venue availability respected, etc.) and initial quality metrics (e.g., total travel distance, distribution of

opponent strengths) are in line with expectations. A review meeting with Big 12 senior staff will sign off that Phase 1 requirements are met and provide feedback for the next phase.

- **Phase 2 (Q1 2025) – Optimization Core Development:** *Objective:* Develop the advanced optimization algorithms and multi-agent system that form HELiiX's brain.

- **Deliverables:** The fully-fledged scheduling engine capable of balancing the multiple objectives (competitive balance, travel, rest days, TV windows, etc.) is delivered in this phase. This includes implementing the **multi-agent framework** – coding the logic for each agent (team, broadcaster, travel, etc.) and the mechanism for them to collectively produce an optimized schedule. Also deliver the **real-time re-optimization** capability: the system should allow users to adjust an input (say, change a date or swap an opponent) and quickly re-generate an updated schedule. The user interface can be refined in this phase to support scenario comparisons (e.g., viewing two schedule versions side by side).

- **Milestones:** By **March 2025**, complete internal testing of the optimization core. This means running at least 3–5 full simulation schedules through the new engine and verifying improvements over the Phase 1 output. For instance, measure a **reduction in total travel** (e.g., 10–15% less mileage vs. a baseline schedule [14]), and check that no team has unfair stretches (like 3 road games in a row unless unavoidable). Also test the multi-agent adjustments – e.g., simulate a late TV request to move a game and ensure the engine can reshuffle minor details without breaking the whole schedule. A mid-March checkpoint review will confirm that the optimization module is functional and ready to incorporate the postseason features.

- **Phase 3 (Q2 2025) – Postseason Maximization Integration:** *Objective:* Integrate NCAA tournament-focused analytics and finalize the scheduling model.

- **Deliverables:** The **postseason maximization framework** is the highlight of this phase – essentially, embed logic/models that evaluate how a given schedule might impact NET rankings and NCAA selection outcomes. Deliver a module that can compute metrics like projected Quadrant 1 wins for each team or changes in NET if certain games are won/lost (this may involve basic predictive modeling or using historical data trends). The scheduling engine will use this module to guide final adjustments – for example, it might schedule two bubble-caliber teams to meet twice if data suggests both could benefit in NET from splitting wins, whereas previously they might have played once. In addition, Phase 3 should produce a refined **dashboard or report** for Big 12 officials to see the expected impacts (e.g., "With this schedule, projected NET rankings would yield X teams in top 40"). Finally, all remaining conference-specific requirements are integrated (for instance, ensuring the rivalry games like Kansas vs. K-State occur twice, or that no team has home/away imbalance beyond acceptable range).

- **Milestones:** By **June 2025**, generate a **draft 2025–26 men's basketball schedule** using the full HELiiX platform (Phases 1–3 features combined). This draft is essentially the product of HELiiX's logic before any human tweaking. It will be rigorously evaluated: the Big 12 team (with SME input) will examine if the schedule meets strategic goals (e.g., each team's schedule difficulty aligns with expectations, high-profile games are well placed, predicted tournament bids/seeds look favorable). We expect at this stage to identify any final tweaks or needed parameter changes. A sign-off at end of June means HELiiX is ready for final testing and rollout. (If any issues are found, a buffer in early July allows for corrections.)

- **Phase 4 (July 2025) – Testing, Training, and Launch Prep:** *Objective:* Final validation of HELiiX output and preparation for official release.

- **Deliverables:** A **final Big 12 schedule for 2025–26** produced and vetted, ready for announcement. In this phase, the deliverable is not just the schedule itself, but also the institutional readiness: user training for the Big 12 staff on how to use HELiiX's interface for future scheduling, a playbook/documentation on the system (so knowledge is preserved), and a contingency plan if any last-second changes are needed after launch. We will also deliver a summary report to Big 12 executives highlighting how the new schedule compares to previous ones (for instance, "Travel reduced by X miles, average NET gain of Y points for mid-tier teams, etc.") to quantify HELiiX's benefits out of the gate.
- **Milestones:** By **mid-July 2025**, complete a thorough **end-to-end test** – freeze the draft schedule and simulate a few real-world late changes to ensure the system handles them (e.g., if a venue conflict arises in November, can we adjust two games easily?). Also, conduct a final review with all 14 *member schools (athletic directors or a designate) – present the draft and ensure no objections or overlooked issues. By early August 2025, incorporate any minor changes from that review and finalize the schedule. August 2025: HELiiX FlexTime officially delivers the Big 12 men's basketball schedule for 2025–26 on time. The schedule is published and the platform is considered live.* (*Big 12 will have 14 or 16 teams depending on final membership in 2025; plan will adjust accordingly.)*

Required Teams and Resource Profiles

To execute the above plan, a cross-functional team will be assembled with the following key roles and resource needs:

- **Engineering Team:** A group of 4–6 software engineers will be dedicated to HELiiX development. This includes **backend engineers** (to build the optimization engine, integrate databases of games/venues, and implement the multi-agent logic) and **front-end/UI engineers** (to create a user-friendly interface for inputting constraints and visualizing the schedule and dashboards). Skills required: expertise in optimization algorithms or operations research (for the backend logic), experience with web application development (for the platform interface), and familiarity with handling data (for integrating metrics like NET or travel distance calculations). The engineering team will work in agile sprints aligned with the project phases, ensuring iterative delivery of features.

- **AI/ML & Data Science Experts:** 2–3 specialists in artificial intelligence and data science will focus on the core scheduling intelligence. This includes an **Optimization Algorithm Specialist** (likely with operations research or similar background) to lead the development of the scheduling algorithm and constraint solver, and a **Data Scientist/Analyst** to handle the NET-centric modeling and postseason projection framework. These experts will develop any predictive models (for example, projecting NET or outcomes) and validate that the algorithm's outputs align with statistical expectations. Experience with sports analytics (ratings, rankings, bracketology) is highly valuable here, as is familiarity with multi-agent systems or heuristic AI methods for scheduling. They will also play a key role in Phase 3 when integrating the postseason optimization layer.

- **Project Manager (PM):** A dedicated project manager is crucial given the tight timeline. The PM will coordinate all phases, track milestones, manage risks, and facilitate communication between technical teams and Big 12 stakeholders. They will run regular check-ins (e.g., weekly team stand-

ups, bi-weekly stakeholder updates) and maintain the project plan. Skills: strong technical project management experience, ability to interface with both engineers and business/executive stakeholders, and ideally some familiarity with sports operations or software projects of a similar scope. The PM ensures that by August 2025, nothing falls through the cracks and that any issues are escalated and resolved swiftly (for example, if a particular feature is running behind, PM might coordinate to add a temporary contractor or reallocate team members).

- **Big 12 Subject Matter Experts (SMEs):** While not full-time developers, a few Big 12 insiders will be continuously involved to guide requirements and validate outputs. This includes: a **Senior Scheduling Officer or Deputy Commissioner** who knows the ins and outs of the current scheduling philosophy and constraints; a couple of **Athletic Directors or Coaches** (perhaps from a scheduling committee) to represent the on-the-ground concerns of teams; and a **Broadcast Liaison** (someone familiar with the TV partners' needs). These SMEs will provide the human inputs that HELiiX needs (much like Pauga collects data from many sources) – such as academic calendars, special date requests (e.g., no home games during a school's exam week), rivalries that must be protected, preferred TV slots, etc. They will participate in design workshops in Phase 1 to ensure the requirement list is exhaustive, and then in review sessions at the end of each phase to give feedback. Essentially, they encode the Big 12's "business rules" into the project. We anticipate perhaps ~4-6 SMEs meeting periodically (monthly or as needed) and being available for quick questions or validations throughout the project.

- **Testing & QA Team:** To ensure quality, we will have 1–2 Quality Assurance testers or analysts, especially active in Phases 2–4. They will be responsible for systematically verifying that each constraint is respected in the schedule and that the multi-objective outcomes meet targets. For example, they might use checklists (does any team play 3 away games in a row? Does any team have fewer than X days rest at any point? etc.) and generate reports on travel and balance for each schedule iteration. These QA members will also help construct realistic test scenarios (like creating a fake set of constraints to push the system to its limits). They can come either from the tech team (i.e., an engineer or data scientist doubling as a tester for another's code) or be dedicated analysts, possibly drawn from Big 12 staff who know the domain. In addition, they'll assist in building the **KPI dashboard** by defining how to calculate the metrics and making sure the data is accurate (e.g., verifying that travel distance calculations are correct, that the count of Quadrant 1 games per team is correct given the schedule, etc.).

- **External Advisors (as needed):** While not mandatory, the project could benefit from short-term input by outside experts: e.g., consulting with Kevin Pauga or other known scheduling gurus for an afternoon to vet our approach (assuming confidentiality can be managed), or hiring an operations research consultant to quickly validate our optimization model structure early on. An experienced **UI/UX Designer** could also be brought in briefly to ensure the interface and dashboards are executive-friendly. These would be time-limited engagements to sharpen the product, not full-time roles.

(Resource Note: The core development team (engineering + AI/ML) would ideally work as an integrated unit, possibly under a single product lead. Given the timeline, a team of roughly 8–10 dedicated people (engineers, data scientists, PM) for a year is expected. Adequate budget and support should be allocated to secure this team, whether through internal assignments or external hires/contracts.)

Testing and Rollout Approach

A careful testing and rollout strategy will be employed to ensure HELiiX FlexTime's first use is a success:

- **Continuous Testing During Development:** Testing won't be a one-time event at the end – it will be baked into each phase. As features are built, the team will run **historical schedule recreations**. For example, once Phase 2's optimization core is ready, we will take the 2023–24 Big 12 season constraints and see if HELiiX can reproduce a comparable schedule (or highlight where it makes different choices). This provides a baseline check against a known good schedule. Any discrepancies will be analyzed: if HELiiX produces something very different, is it an improvement or a sign of a bug/odd weighting? Using real data (past seasons, or known scenarios like "what if the Big 12 had 14 teams in 2019?") is critical to validate the algorithm's reasonableness.

- **Alpha Testing with SMEs:** By Phase 2/early Phase 3, we will have SME stakeholders start **hands-on testing** of the system (or at least reviewing its outputs). They will be given access to the interface to try making constraint changes and see outcomes, or simply to review the generated schedules for sanity. This will surface any domain-specific expectations that might not be obvious to developers. For instance, an AD might notice "Team X has 4 of its last 5 games on the road, that's something we try to avoid," which the algorithm may not have explicitly forbidden if not told. Such feedback will allow us to adjust parameters or add constraints. This alpha testing ensures that by the time we reach Phase 3's final draft, the schedule has had human eyeballs on interim versions, reducing the chance of a blind spot.

- **Beta Test – Dry Run of 2025–26 Schedule:** Once we have the draft 2025–26 schedule (end of Phase 3), we will treat July 2025 as a **beta test period**. Essentially, we will operate as if that draft schedule *were* the final: share it internally as if releasing, and see if any issues arise in practice. For example, we might simulate the public reaction by having a small group (could involve a couple of trusted folks in each athletic department) examine it for a few days to identify any issues (this must be done confidentially). We will also prepare a backup schedule via traditional means (or via the old algorithm if one exists) as a comparison. If any critical flaw is found in HELiiX's version, we can cross-check how the backup handled it. The goal is not to actually use the backup, but to have peace of mind that no matter what, the Big 12 will have a solid schedule. This beta phase will also test the integration of HELiiX with any external systems (for example, ensuring the schedule can be exported to the Big 12's website format, or imported into TV networks' systems seamlessly).

- **Phased Rollout and Scope:** The initial rollout in August 2025 will focus on **men's basketball** (given its high stakes and the specific goal of tournament bids). However, we will plan a **staggered adoption** for other sports rather than trying to do everything at once. For instance, if all goes well, we might use HELiiX for **women's basketball scheduling in 2026**, and potentially for Olympic sports scheduling in the 2026–27 season. This phased approach allows the system to mature and incorporate sport-specific differences gradually. It also means in the first year we can concentrate on making the basketball schedule perfect, without the complexity of multi-sport scheduling (which can be tackled in the roadmap).

- **Training and Documentation:** Prior to the public release of the schedule, we will conduct training sessions with the Big 12 conference staff who will maintain and use HELiiX going forward (likely the operations staff who currently handle scheduling). They'll learn how to input constraints, how to run

the algorithm, and how to interpret its outputs. We will also provide a **user manual** and a **technical runbook**. The user manual covers how to operate the system, and the runbook covers what to do if something goes wrong (e.g., "if a game needs to be changed after schedule release, here's how to adjust it in HELiiX and regenerate updates"). This ensures that the Big 12 is self-sufficient with the platform on a day-to-day basis and not reliant on the development team post-launch.

- **Go/No-Go Checkpoint:** In late July 2025, there will be a formal go/no-go meeting with Big 12 leadership. We will present the final schedule, along with all the validation metrics and stakeholder approvals gathered. If all key criteria are met (fairness checks, approval from each school, etc.), we get the green light to announce the schedule as a product of the new HELiiX system. If there is any lingering concern, the contingency could be to use the schedule but perhaps not advertise the use of HELiiX heavily (in the unlikely event we want to stay low-key in year one) or in worst case, fall back to the backup schedule. Given the extensive testing planned, we fully expect a "Go" and a success story to broadcast.

- **Public Communication:** As part of rollout, the Big 12 may consider a PR angle – for example, a press release or executive statement about how the Big 12 is innovating with an AI-driven scheduling system (without divulging proprietary details). This could frame the narrative positively, highlighting benefits like improved travel and fairness for student-athletes. It sets the stage so that when the schedule is released, media and fans are aware that a thoughtful, high-tech process produced it. We will coordinate with Big 12 communications staff on this messaging. (This also pre-empts any criticism by showing the conference proactively addressing scheduling challenges.)

Post-August 2025 Roadmap

Delivering the platform by August 2025 is the primary goal, but we already envision substantial enhancements following the initial launch. These ensure HELiiX FlexTime remains a cutting-edge tool and continues to drive strategic value:

- **Advanced Machine Learning Modules:** After the first season, we will have actual data on how the HELiiX-crafted schedule performed (e.g., how many Big 12 teams made the NCAA, injuries, TV ratings, etc.). In the post-launch phase, we plan to develop ML models to further improve predictions and decision-making. For example, an ML model could analyze years of game results to better predict how scheduling dynamics (rest, location, opponent strength) affect win probabilities and team NET outcomes. This could augment the scheduling algorithm by weighting certain patterns the data shows are beneficial. Another area is using ML for **demand forecasting** – predicting attendance or viewership for a potential matchup and timing, which could then inform schedule adjustments to maximize those figures. Essentially, the platform can evolve from rule-based optimization to a more **predictive, data-driven optimization**. We'll also explore reinforcement learning: letting the algorithm simulate many seasons and "learn" which scheduling decisions lead to the best overall conference outcomes (this is experimental, but could uncover non-intuitive strategies). These advanced AI features would roll out in late 2025 and 2026, in time to influence the 2026–27 scheduling cycle. They will keep the Big 12 ahead of any competitor conferences by continually upping the sophistication.

- **Full Multi-Agent Ecosystem:** The initial version of HELiiX will have multi-agent principles internally, but the roadmap is to expand this concept into a **holistic ecosystem**. In practical terms, this means

bringing more stakeholders and variables into the simulation. For example, incorporate a **"Fan Experience" agent** that prefers weekend games or seeks to maximize attendance (important for gate revenue), or an **"Academic" agent that blocks games during exam periods or long road trips during midterms** for each school. We can also extend the system to coordinate **multi-sport scheduling**. Many Big 12 schools have shared facilities (one arena for both men's and women's basketball) and limited staff/flight availability for teams. A full ecosystem version of HELiiX would schedule multiple sports in tandem, or at least be aware of other sports' schedules to avoid conflicts (e.g., don't schedule both basketball teams away on the same day straining the department, or avoid home football and basketball games on the same campus on the same day if that's an issue). By 2026, we aim for HELiiX to be not just a basketball scheduler but the nucleus of **Big 12's total scheduling operations**. Additionally, we can explore integration with other conferences or non-conference scheduling: a future agent might represent the NCAA or other conferences to coordinate challenges or avoid scheduling major non-conf games right before conference tournaments, etc. This multi-agent ecosystem will solidify Big 12's reputation as the most forward-thinking conference, with a system that continuously balances the needs of all parties in real time.

- **Holistic KPI Dashboards & Decision Support:** In the next phase of development, we will build out the executive dashboards that have only been lightly touched on in the initial delivery. The idea is a **"Commissioner's Dashboard"** that provides a live pulse on key metrics throughout the year. This includes: scheduling quality metrics (like total travel miles saved this season vs last, average rest days, number of top-10 matchups scheduled, etc.), **performance metrics** (current NET rankings of Big 12 teams, projected NCAA bids if season ended today, upset alerts if a top team has a tough travel schedule upcoming, etc.), and **financial metrics** (attendance figures relative to schedule, TV ratings per game vs expectations). These dashboards will pull from various data sources (NCAA NET updates, ticket sales, TV reports) and present insights in a simple visual way. For example, if by mid-season the dashboard shows that a certain team's NET is lagging because they haven't had enough Quadrant 1 games, it could flag that as something the conference might address in future scheduling or in non-conference scheduling advice. Essentially, the dashboards turn HELiiX from a one-time scheduling tool into a continuous decision-support system for the conference. Executives could use it in meetings to answer questions like "Are we on track to get 8 bids this year?" or "How did our new schedule format affect travel costs and player rest?" By early 2026, we plan to roll out these dashboards to the Big 12 leadership and ops team. Over time, we can also provide versions to member schools (so they can see how their schedule was formed and how it's benefiting them). This transparency and data-centric approach will further ingratiate HELiiX with stakeholders, as well as provide empirical justification for any future tweaks to scheduling policies.

- **Long-Term Vision – Continuous Innovation:** Post-2025, HELiiX FlexTime will not be a static product. We will maintain a roadmap that is revisited each offseason. Potential items include: incorporating *player and team performance data* (for instance, linking with player wearables or fatigue metrics if available, to further optimize rest), exploring *scenario planning for College Football Playoff expansion or other sports* (the same principles could help football scheduling when the Big 12 grows or if the playoff system incentivizes certain scheduling), and possibly **monetization or partnerships** (if HELiiX proves hugely successful, the Big 12 could license the technology to smaller conferences or work with the NCAA to share best practices – creating a new revenue or influence channel). While these might be beyond the immediate scope, having HELiiX puts the Big 12 at the forefront of sports scheduling analytics. We will keep the conference executives involved in prioritizing which new features matter most each year. The commitment is that HELiiX will continuously adapt to the

conference's evolving needs, ensuring the Big 12 retains its competitive edge off the court, which in turn leads to greater success on the court.

Results-Oriented Conclusion: By embracing HELiiX FlexTime, the Big 12 positions itself to reap substantial competitive and financial rewards through smarter scheduling. The plan above ensures a timely deployment for the 2025–26 season, backed by thorough testing and stakeholder involvement to mitigate risks. HELiiX's innovative NET-centric, multi-agent approach directly aligns the schedule with the conference's strategic goals – increasing NCAA bids, improving team performance, boosting revenue, and safeguarding player welfare – all while navigating the complexities of a larger, more geographically dispersed Big 12. With strong executive support and cross-functional execution, HELiiX FlexTime will become a cornerstone of the Big 12's strategy, showcasing the conference as a leader in innovation and competitive excellence. The investment in this platform is an investment in the Big 12's future dominance, on selection Sunday and beyond. Each phase, each feature, and each safeguard in this plan is geared towards one outcome: **a Big 12 schedule that delivers maximum benefit with minimal friction**. By August 2025, we aim to not only have a revolutionary scheduling system in place, but also to have set in motion a culture of data-driven decision making that will keep the Big 12 a step ahead of the competition for years to come.

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