MACQUARIE University

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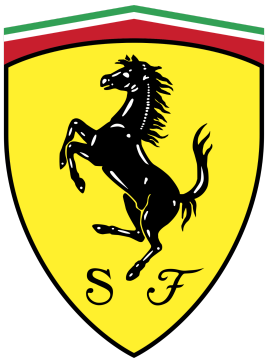
School of Computing

COMP8790: STRATEGIC PROJECT MANAGEMENT



Assignment 2 - Ferrari's Strategic Transition to the 2026 F1 Regulations

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Group 5

47987731 - Ojaswi Kafle
48395692 - Nguyen Thu Trang (Tracy)
48094366 - Manasi Pragnesh Lotia
48229105 - My Linh (Jennie) Do

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1. Abstract & Background

1.1. Abstract

This report delineates the strategic adaptation plan for the Ferrari Formula One (F1) team to adapt to the 2026 pivotal regulation changes (FIA, 2024). For Ferrari, whose rich historic prestige & recent years under-performance are in strenuous contention, this regulatory shift necessitates both a technical & cultural renewal opportunity.

The project employs structured methodologies, including SWOT analysis, Risk matrix, & Agile project frameworks. The final aim is to ensure that Ferrari is not only compliant with the new regulations but also well-positioned to target dual championships from 2026 onwards.

1.2. Background

Scuderia Ferrari HP Formula 1 stands among the most iconic & historically successful teams in F1, boasting 16 Constructors' & 15 Drivers' Championships (Holding, 2022). However, despite consistently strong driver lineups & substantial investment in technology, the team has failed to obtain a Championship title since 2008. Recent campaigns, notably 2022-2024, have been demonstrated with strong competitiveness, but undermined by mid-race strategic miscalculations & technical reliability concerns (Palmer, 2022).

The 2026 regulation overhaul is poised to significantly reshape the F1 landscape, introducing pivotal changes across key areas (Barretto, 2024a; FIA, 2024):

- **Power Units**: redesigns featuring 3x electrical power, 50/50 split between ICE & electrical supply, removing MGU-H (Barretto, 2024b), & doubling brake regenerative recuperation (Formula One, 2024a).
- **Sustainable Fuels**: 100% commitment to renewable energy, aligning with F1's broader 2030 Net Zero vision (Barretto, 2022).
- **Chassis & Aerodynamics**:
    - Dimensions & Weight: lighter & smaller vehicles, including a 30kg weight reduction, 5% reductions in wheelbase & car width, & lowering maximum floor width by 150mm (Edmonson, 2024).
    - Active Aerodynamics: introduction of X-mode & Z-mode wings, replacing the current Drag Reduction System (DRS) (Barretto, 2024c).
    - Downforce: overall downforce targeted to reduce by 30% & drag by 55% via partial flat floor & lower-powered diffuser (Mercedes AMG F1, 2024).
- **Tyres**: While the 18-inch wheels remain unchanged, the width of the front & rear tyres is to be reduced by 25mm & 30mm, respectively (Formula One, 2024).
- **Safety enhancements**: Revised front impact structures, increased side intrusion protection, increased roll hoop load requirements, & more visible rear wing endplate lights mandates (Racing News, 2024).

In 2025, Ferrari's driver lineup of Charles Leclerc & Lewis Hamilton features a mix of youth, experience, & proven championship track records. The duo resembles a unique strategic asset

to navigate & adapt to the regulatory changes. This project aims to leverage Ferrari's deep-rooted technical expertise, significant brand equity, substantial resources ($200M budget cap & 1000 personnel) to develop a structured, project-management-driven strategic plan for achieving 2026 competitive success.

2. Performance Review (2022–2024)

In 2022-2024, Ferrari F1 showcased several periods of significant competitiveness, securing strong qualifying positions. However, the team consistently fell short of a sustained championship.

2.1. Performance snapshot

Year	*Key performance aspects*
2022	● **Strong Start:** The team began strongly – 4 wins, 12 poles, & 2nd-place in Constructors' standings (Formula One, 2022; Pitwall, 2022). ● **Challenges:** However, mid-season engine failures, i.e., Spain, Baku, Austria (Delaney, 2022a) & pit strategy blunders in Monaco (Formula One, 2022) hampered the campaign results. ● **Result:** Despite the engine step-up, reliability problems proved costly in terms of points & resources (Delaney, 2022), ultimately conceding both titles to Red Bull.
2023	● **Struggling Stats:** Ferrari's 2023 season struggled to maintain pace with competitors, notably Red Bull Racing, with 9 podiums & only 1 victory in Singapore (Hardy, 2023). ● **Persistent Challenges:** While DNF reliability has improved, general unpredictability in aerodynamicism, tough tyre degradation, & strategic missteps continued had offset any noticeable gains. ● **Internal Changes:** Team Principal Binotto resigned after 28 years of tenure, resulting in several mid-season revisions to the SF-23's underperforming concept (Guajardo, 2024). ● **Result:** outscored by both Red Bull & Mercedes, with Leclerc & Sainz ranking only 7th & 5th respectively.
2024	● **Encouraging rebound**: The Scuderia amassed 652 points & finished 2nd in Constructors' standings, & 22 podium finishes (Pitwall, 2024). The team's

	winning momentum was celebrated all through round 8. ● **Faulty upgrades:** unintentional aerodynamic update, car damages, & sporadic engine failures along the mid-season (Harrison, 2024) ● **Impressive finish:** Ferrari narrowly missed out on the titles (Harrison, 2024) to McLaren with a close margin via an impressive end-of-season rally

2.2. Organisational challenges

- Budget constraints vs Innovation

The FIA's cost cap ($135M chassis, $130M power unit) has reshaped Ferrari's development model. Once dominant via big spending, Ferrari had to adapt within fixed resources. In 2022, development was halted mid-season to stay within budget (Collantine, 2022).

- Team turnover & morale

After 2022, Ferrari replaced Team Principal with Frédéric Vasseur, with key figures of Laurent Mekies & David Sanchez departing in 2023, raising concerns on expertise continuity (Larkam, 2023).

- Sponsor dependencies

The loss of PMI/Malboro's long-standing sponsorship in 2022 has forced Ferrari to diversify, partnering with HP & Qualcomm (Reuters, 2024). Under the cost cap, excess funds are under scrutiny for performance relevancy & sponsor alignment.

2.3. Strengths & Legacy

- Historic Excellence:

Ferrari's greatest asset is its unmatched legacy. With 16 Constructors' & 15 Drivers' Championship titles, Ferrari is the only team to have competed in every F1 season since 1950 (Formula One, 2024). The team's longevity grants infrastructure advantages, technical depth, & political capital in its ingrained racing culture.

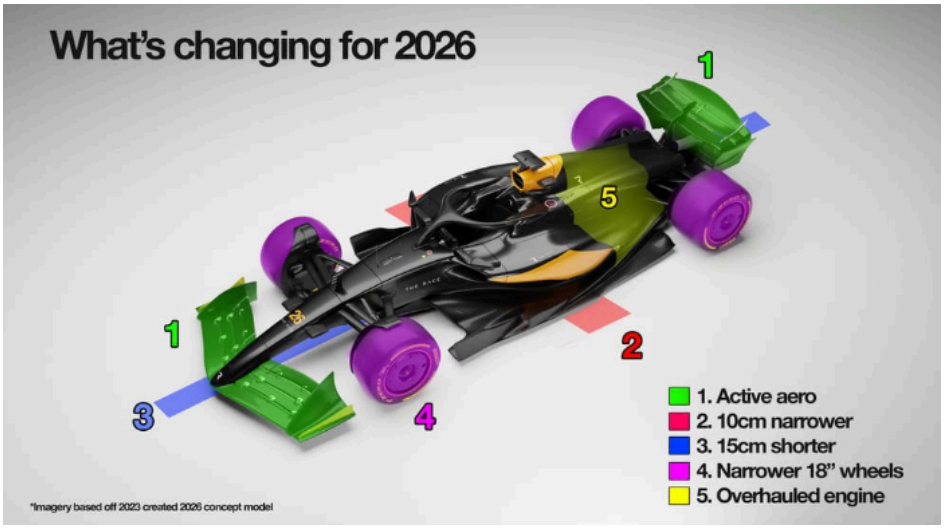
- Brand Equity & Fan Loyalty:

In 2023, Ferrari remained among the most-followed teams globally (Benchaita, 2025) of 400 million followers, driving sponsor visibility & team morale. The *Tifosi,* Ferrari's dedicated fanbase, provide unwavering support despite recent seasons' unpromising results. This offers significant commercial advantages for the team.

- Hybrid history:

Ferrari's hybrid history provides a head start, among the first teams to win with KERS in 2009 & V6 turbo-hybrid in 2014 (Higgins, 2021). Close collaboration with Shell on biofuels, investment with the University of Bologna & NXP for electrification development further demonstrates forward momentum.

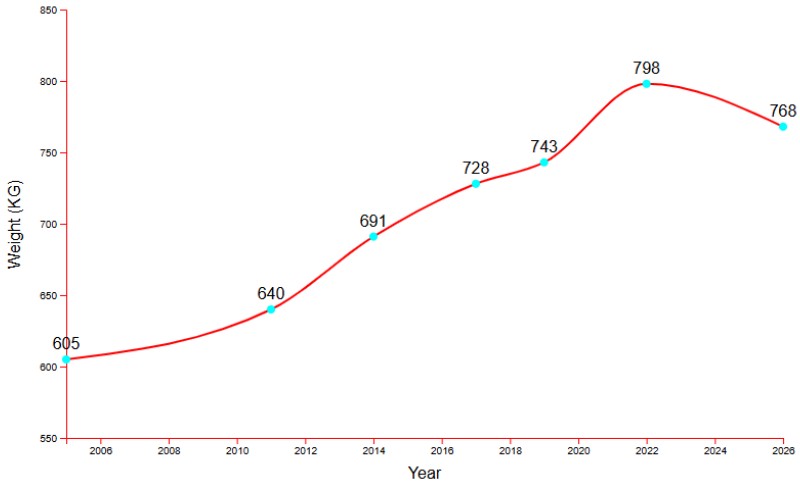
3. Regulatory Context – 2026 FIA Mandates + Vision & Mission



(Figure 1: 2026 Concept Model (DriverDB, 2024))

The most notable FIA 2026 mandate is introducing a fully sustainable fuel requirement- **Article C16.4: Composition of the fuel,** which mandates Advanced Sustainable(AS) components only, with non-AS impurities limited to 1 % by mass. Furthermore, power units will operate on a 50/50 power split between electrical energy & internal combustion engine (ICE) power in **Article C5.4: Power Unit Energy Flow**. Further, there are more mandates regarding engines, namely complete removal of the MGU-H part, which will greatly reduce the complexity of engines, & the MGU-K (kinetic energy recovery system) is mandated at 350kW. Ferrari, traditionally excelling with high-performance ICE technology, must redesign their engines completely & maintain competitiveness.

Another significant regulatory directive involves active aerodynamic systems, including movable wings, **Article C3.10: Front Wing Rotation System & Article C3.11: Rear Wing Rotation System**, designed explicitly to enhance overtaking & reduce drag. Coupled with mandated reductions in downforce (approximately 30%) & drag (55%), these aerodynamic modifications challenge traditional design philosophies per **Article C3.5–C3.6: Downforce, Drag & Weight Reduction**. Ferrari's historical excellence in aerodynamic innovation, combined with robust computational fluid dynamics (CFD) & wind tunnel capabilities, positions the team strategically to exploit this directive to its advantage. Another change in the mandate is that the car's minimum weight is decreased by 30kg, from 798kg to 768kg- **Article C4.2 Minimum Mass**.



(Figure 2: Changes in Car's weight by Year)

The budget caps are spread in 2026, capped at $200 million annually. This was increased from 140 million in 2025 to cover new aero & power unit modifications introduced earlier (RobinB, 2025). Thus, Ferrari's financial resources require precise & strategic allocation & execution. Additionally, the FIA does emissions audits & requires transparency in operational footprints, which compels Ferrari to adopt more eco-friendly logistics & operational practices (FIA SUSTAINABILITY AND D&I REPORT 2023, 2024).

Ferrari, although having a huge reputation, has not secured a championship title since 2008. It is high time they change their approaches & capitalize on the mandates to win the races in 2026. The team's major issues have been attributed to strategic miscalculations, operational inefficiencies, & a slower pace of innovation. The new regulations allow Ferrari to restructure strategically & operationally. With their technical expertise, sustainable operations, & top drivers, Ferrari will have a chance to reclaim its status in the upcoming Formula One season.

Area	**Regulation Details (2026)**	**Strategic Implication**
Power Unit	100% sustainable fuel (AS components, 1% impurity), 50/50 electric-ICE split, MGU-H removed, MGU-K at 350kW	Urgent innovation in hybrid and sustainable powertrains
Aerodynamics	Active aero (movable wings), 30% downforce & 55% drag reduction, new minimum weight (768kg)	Leverage CFD, wind tunnel, and lightweight design
Budget Cap	$200 million annual cap, stricter financial controls	Precision in resource allocation and cost efficiency
Emissions	Mandatory sustainability audits, operational footprint transparency	Implement green logistics and robust reporting
Diversity & Inclusion	Expanded engagement and transparency requirements	Broaden global fan and talent outreach
Safety & Risk	Auditable safety frameworks, compliance with new technical standards	Strengthen contingency planning and compliance

4. SWOT Analysis – Ferrari's Strategic Position Under 2026 Regulations

A comprehensive SWOT analysis has been conducted to evaluate Ferrari's strategic positioning in response to the changes in the 2026 FIA regulations. By evaluating the internal strengths & weaknesses alongside external opportunities & threats, Ferrari can effectively navigate this significant regulatory shift.

Strengths	Weaknesses
Ferrari's global brand draws top talent, sponsors, and fans.	Race-day strategy errors have cost Ferrari crucial points.
Leclerc and Hamilton bring a blend of youth, loyalty, and championship experience.	The SF-25 (Ferrari's car for 2025) exposed persistent chassis and setup flaws.
Maranello's new facilities boost hybrid and EV technology development.	Decision-making is often slower than rivals like Red Bull.
The renewed Shell deal ensures tailored sustainable fuel solutions.	No championship titles since 2008 hurts team confidence.
Advanced simulation and manufacturing help rapid car development.	The budget cap restricts Ferrari's ability to outspend competitors.

Opportunities	Threats
The 2026 rules reset allows Ferrari to innovate and catch up.	Losing the MGU-H erases Ferrari's previous power unit gains.
Shell's expertise in biofuels could give Ferrari a fuel performance edge.	Red Bull's aero expertise may give them an active aero advantage.
Hybrid and battery tech from road cars can boost F1 development.	Standardized parts limit Ferrari's ability to innovate.
AI and data analytics can improve strategy and car setup.	Integrating new systems increases reliability risks.
Hamilton's hybrid experience can fast-track 2026 adaptation.	Rivals like Mercedes and Red Bull adapt quickly to new rules.
Opportunity to form new technical alliances in hybrid and electric vehicle (EV) technologies	The tight budget cap ($200 million) limiting capacity to significantly out-invest competitors

Ferrari is getting ready for some big changes in Formula 1, & there is a lot to be optimistic about. The team's global reputation still pulls in top talent & sponsors, & having both Leclerc & Hamilton in the lineup brings a great mix of youth & experience. The new e-building at Maranello (Ferrari, 2024), plus the renewed deal with Shell, put Ferrari in a good spot to push forward with hybrid tech & sustainable fuels (Ferrari, 2021). Their advanced simulation tools should help speed up car development as well.

But there are some real challenges. Strategy mistakes on race day have cost the team in the past, & the SF-25's issues showed there's still work to do on the car's design (Rossi, 2025). Ferrari's decision-making can be a bit slow compared to teams like Red Bull, & it's been a long time since their last championship. The budget cap also means they cannot spend extravagantly on testing & development. Still, the 2026 rules give Ferrari a chance to catch up. Hamilton's experience with hybrid systems could be a **game changer** for engine development (Cunanan, 2024). If the team can fix its weaknesses & make the most of these opportunities, there's a real shot at getting back to the top.

5. Strategy & Workstream

5.1. Strategic Rationale

The upcoming 2026 Formula 1 regulation overhaul signifies a critical strategic inflection point for all teams. Central to these changes is the requirement for power units to achieve a 50/50 energy split between internal combustion engine (ICE) output & electric energy deployment (ESPN, 2024). Additionally, there will be significant aerodynamic constraints & the continued enforcement of the FIA-mandated cost cap, which introduces a new era of performance, compliance, & operational efficiency (FIA, 2024).

For Ferrari, this transition presents both a substantial challenge & a strategic opportunity. As a heritage car house with extensive mastery in ICE technology, advanced in-house manufacturing capabilities (Electrek, 2023), Ferrari is uniquely positioned to leverage its historical strengths while navigating the complexities of a hybrid approach, financially constrained, & technologically demanding future. To capitalise on this moment, the Red Reign 2026 strategy has been introduced as a full-fledged five-workstream transformation initiative. This program aims to re-establish Ferrari's competitive dominance by aligning technical innovation, operational agility, & regulatory compliance.

5.2. Strategy Workstream/ Project

5.2.1. Project 1: HY-REIGN - Hybrid Powertrain Reengineering

The HY-REIGN initiative directly addresses the 2026 Formula 1 regulation requiring a 50/50 energy split between internal combustion engine (ICE) & electric systems. Ferrari leverages its core engineering strength - decades of ICE innovation & in-house dyno testing infrastructure to

develop a regulation-compliant hybrid power unit (PU). The strategy involves co-developing advanced MGU-K components with specialised suppliers, deploying digital twin simulations for accelerated validation, & conducting real-world testing to optimise performance under race conditions.

5.2.2. Project 2: AeroNext - Adaptive Aerodynamics Optimization

AeroNext is Ferrari's strategic response to the reintroduction of active aerodynamics by integrating AI-enhanced Computational Fluid Dynamics (CFD) modelling with Maranello's wind tunnel infrastructure, the team seeks to develop regulation-compliant adaptive aero systems, including software-controlled Drag Reduction Systems (DRS). This initiative builds on Ferrari's historical excellence in aerodynamic R&D while also embedding emerging digital tools for faster iteration cycles. According to Teece, Pisano, & Shuen (1997), competitive advantage in high-velocity environments derives from the orchestration of internal competencies & external technological change—precisely the strategic interplay that AeroNext embodies.

5.2.3. Project 3: Veloci Agile - Performance Through People & Digital Tools

The Veloci Agile stream tackles the organisational challenges of maintaining competitiveness under the FIA's financial regulations, particularly the cost cap. This project aims to increase productivity per FTE by restructuring team workflows around agile principles. Actions include adopting sprint-cycle development & stand-ups, also deploying collaborative tools such as JIRA & Miro to increase project visibility & reduce time-to-execution. Veloci Agile reflects the application of workforce agility is conceptualized as a strategic response to dynamic pressures, requiring resource reconfiguration & adaptive processes (Ajgaonkar et al., 2021). By aligning executional speed with cost cap limits, Ferrari shifts from rigid legacy processes to modular, adaptive performance systems.

5.2.4. Project 4: Lean Innovation Lab - Cost-Cap Efficient R&D

The Lean Innovation Lab is Ferrari's strategic initiative to preserve innovation intensity despite severe fiscal constraints. Research indicates that firms with higher R&D intensity are more likely to adopt inventory leanness strategies, which can mitigate the adverse effects of R&D spending on financial performance (Haque et al., 2024). By introducing a framework emphasising rapid prototyping, fail-fast MVPs, the team accelerates development, allowing Ferrari to reduce innovation latency & cost per iteration while safeguarding technical quality. It represents a shift toward "leanification" rather than total automation; from high-risk development models to agile experimentation, reinforcing Ferrari's legacy of engineering excellence with modern R&D governance (Moro & Virgillito, 2022).

5.2.5. Project 5: Zero Failure Framework – Risk & Compliance Governance

The Zero Failure Framework is Ferrari's risk governance initiative, designed to manage the increasing complexity of regulatory, reputational, & operational risks in 2026. The project includes the development of structured compliance playbooks, real-time monitoring dashboards,

& cross-team audit simulations. Rooted in Ferrari's legacy standards for quality assurance, this initiative executes the principles of proactive risk management with predictive analytics, transforming compliance from a reactive obligation to a competitive differentiator. By embedding control systems into engineering & operations, Ferrari safeguards against technical failures, reputational harm, & costly penalties.

6. WBS - 2026 Strategy planning

This section provides a dual-lens view of the strategic roadmap guiding the innovation, development, & compliance journey toward the 2026 season. It is organized into two perspectives:

- **Project View:** Specific, interlinked projects with defined tasks, durations, & dependencies
- **Phase View**: High-level milestones grouped by strategic timeframe & organizational focus

6.1. Project View: Tactical Execution Plans

Task ID	Strategic Milestone	Start Date	End Date	Duration (weeks)	Dependencies
P1	**HY-REIGN - Hybrid Power Unit Redesign**				
P1.1	Define system blueprint for next-gen energy recovery unit	2024-07-01	2024-08-12	6	None
P1.2	Model thermal performance to safeguard battery efficiency	2024-08-13	2024-09-16	5	P1.1
P1.3	Launch digital twin for full system validation	2024-09-17	2024-10-21	5	P1.2
P1.4	Integrate core hybrid components (ICE + ERS)	2024-08-13	2024-09-23	6	P1.1
P1.5	Finalize supplier partnerships and technical ownership	2024-08-13	2024-09-02	3	P1.1
P1.6	Build and validate first working prototype (MGU-K module)	2024-09-03	2024-10-21	7	P1.5
P1.7	Conduct controlled dyno testing and calibration	2024-10-22	2024-11-25	5	P1.3, P1.6
P1.8	Confirm on-track readiness through structured QA checklist	2024-11-26	2024-12-09	2	P1.7
P1.9	Execute first live test run (Barcelona)	2024-12-10	2024-12-31	3	P1.8
P1.10	Analyse results for performance validation and iteration	2025-01-02	2025-01-22	3	P1.9
P1.11	Refine PU based on test run results (iteration + validation cycle)	2025-01-23	2025-04-17	12	P1.10
P1.12	Develop regulatory compliance documentation + QA checklist	2025-04-18	2025-05-30	6	P1.11
P1.13	Final homologation test cycle + 2026 PU freeze readiness	2025-06-02	2025-08-29	13	P1.12

(Figure 3. HY-REIGN - WBS of high-level execution plan (Author's work, 2025))

It begins with a foundational 6-week blueprinting phase in July–August 2024 to define the architecture of the upgraded hybrid energy recovery system, which is a prerequisite for all subsequent integration work. Thermal modeling, digital twin validation, & supplier finalization occur in parallel to maintain momentum & systems-level coherence. By early Q4, Ferrari targets a dyno-tested MGU-K prototype, followed by structured QA & a live track test at Barcelona in December 2024. This ensures critical performance data is captured ahead of an iterative

refinement & compliance preparation loop from January to May 2025. The final homologation window from June to August 2025 guarantees Ferrari is freeze-ready by the FIA's March 2026 deadline. This timeline ensures technical rigor, parallel development efficiencies, & full systems visibility throughout the hybrid program.

Task ID	Strategic Milestone	Start Date	End Date	Duration (weeks)	Dependencies
P2	**AeroNext - Adaptive Aerodynamics Optimization**				
P2.1	Standardize CFD data for AI model training	2024-07-01	2024-08-12	6	None
P2.2	Train Gen 1 AI model for airflow simulation	2024-08-13	2024-09-09	4	P2.1
P2.3	Develop hybrid wind tunnel-AI validation plan	2024-08-13	2024-09-02	3	P2.1
P2.4	Build initial aero configuration for validation	2024-09-03	2024-09-30	4	P2.2, P2.3
P2.5	Design smart DRS logic for adaptive drag control	2024-09-03	2024-10-07	5	P2.2
P2.6	Conduct hybrid validation cycle 1 (wind tunnel + AI output comparison)	2024-10-08	2024-11-11	5	P2.4
P2.7	Refine AI model to Gen 2 with hybrid feedback	2024-11-12	2024-12-09	4	P2.6
P2.8	Finalize smart wing design (CAD)	2024-12-10	2025-01-27	7	P2.5, P2.7
P2.9	Integrate DRS software and aero hardware for system testing	2025-01-28	2025-03-03	5	P2.8
P2.10	Conduct full-car wind tunnel + on-track aero validation (final)	2025-03-04	2025-04-14	6	P2.9
P2.11	Submit FIA compliance documentation and initiate homologation review	2025-04-15	2025-06-09	8	P2.10
P2.12	Contingency buffer: FIA feedback, adjustments, resubmissions	2025-06-10	2025-09-01	12	P2.11

(Figure 4. AeroNext - WBS of high-level execution plan (Author's work, 2025))

The AeroNext timeline is strategically phased to balance rapid AI-driven development with the validation rigor required for FIA homologation. The process begins with standardizing CFD datasets (July - August 2024), which ensures high-fidelity training inputs for the Gen 1 AI airflow simulation model. In parallel, Ferrari initiates hybrid validation planning & early smart DRS logic design. By September, initial aero configurations are constructed & integrated into a hybrid wind tunnel-AI validation cycle (October - November). Gen 2 AI refinements & smart wing CAD finalization follow, enabling full system integration in early 2025. Final wind tunnel & on-track validations are conducted before FIA documentation submission in April. A built-in contingency buffer (June - September 2025) allows feedback incorporation & resubmissions, de-risking the homologation pathway while maintaining development velocity.

Task ID	Strategic Milestone	Start Date	End Date	Duration (weeks)	Dependencies
P3	**Veloci Agile – Team Productivity Under Cost Cap**				
P3.1	Conduct org health baseline & process pain point analysis	2024-07-01	2024-07-29	4	None
P3.2	Pilot agile workflows across 2 squads (Tech + Ops)	2024-07-30	2024-09-09	6	P3.1
P3.3	Design unified digital workspace framework (Miro, Confluence JIRA)	2024-07-30	2024-08-26	4	P3.1
P3.4	Launch cross-functional retro + feedback loop sprint	2024-09-10	2024-10-07	4	P3.2
P3.5	Finalize scalable agile governance playbook	2024-10-08	2024-11-04	4	P3.4
P3.6	Expand agile squads org-wide with coaching & tracking	2024-11-05	N/A	On-going	P3.5
P3.7	Measure productivity uplift and cost-per-deliverable metrics	2025-12-22	2025-12-31	1	None

(Figure 5. Veloci Agile - WBS of high-level execution plan (Author's work, 2025))

A four-week diagnostic (July 2024) establishes a baseline in workflow bottlenecks & team health. Agile pilots in two representative squads, launched immediately afterward, provide real-world testbeds for iterative governance & toolchain refinement through Q3. By October, cross-functional retrospectives feed into a playbook to guide a scalable agile rollout across departments. While coaching & governance expansion will continue indefinitely, the timeline ensures readiness for organization-wide adoption by Q1 2025.

Task ID	Strategic Milestone	Start Date	End Date	Duration (weeks)	Dependencies
P4	**Lean Innovation Lab**				
P4.1	Define MVP pipeline framework for component innovation	2024-07-01	2024-07-22	3	None
P4.2	Launch 1st low-cost prototype cycle using legacy components	2024-07-23	2024-08-19	4	P4.1
P4.3	Automate design validation using cloud CAD + AI feedback tools	2024-08-20	2024-09-16	4	P4.2
P4.4	Run failure analytics dashboard to inform design pivots	2024-09-17	2024-10-14	4	P4.3
P4.5	Conduct lean budgeting sprint for next-stage innovation stream	2024-10-15	2024-11-11	4	P4.4
P4.6	Submit R&D cost-efficiency report with cycle time insights	2024-11-12	2024-12-09	4	P4.5
P4.7	Launch Lean Lab 2.0 – rapid R&D tooling upgrade	2025-03-11	2025-04-21	6	P4.6
P4.8	Test 2026 development parts using Lean Lab prototyping model	2025-09-01	2025-10-27	8	P4.6
P4.9	Integrate lean R&D metrics into budget allocation & planning 2026	2025-10-28	2025-12-08	6	P4.7, P4.8

(Figure 6. Lean Innovation Lab - WBS of high-level execution plan (Author's work, 2025))

The timeline opens with a 3-week MVP pipeline framework in July 2024, directly feeding into a 4-week prototype sprint using legacy components. Cloud CAD & AI validation tools follow immediately to automate iteration, with failure analytics in Q4 guiding design pivots. By November, insights from lean budgeting sprints feed into an R&D cost-efficiency report, preparing the ground for a Q1 2025 tooling upgrade (Lean Lab 2.0). Two additional cycles, testing 2026 parts (Sep - Oct 2025) & budget integration (Oct - Dec 2025), enable real-time feedback between engineering, finance, & planning.

Task ID	Strategic Milestone	Start Date	End Date	Duration (weeks)	Dependencies
P5	**Zero Failure Framework - Risk & Compliance Governance**				
P5.1	Identify key regulatory blind spots from 2023–24 incidents	2025-01-06	2025-01-27	3	None
P5.2	Design real-time compliance + risk dashboard architecture	2025-01-28	2025-02-24	4	P5.1
P5.3	Draft cross-team audit playbooks (powertrain, aero, ops)	2025-01-28	2025-02-24	4	P5.1
P5.4	Pilot incident simulation sprints (QA + race scenarios)	2025-02-25	2025-03-24	4	P5.2, P5.3
P5.5	Finalize control framework for 2026 pre-season go-live	2025-03-25	2025-04-21	4	P5.4
P5.6	Submit compliance assurance to FIA and begin rollout	2025-04-22	2025-05-12	3	P5.5

(Figure 7. Zero Failure Framework - WBS of high-level execution plan (Author's work, 2025))

In anticipation of 2026 regulatory tightening, this project establishes a resilient control architecture grounded in learnings from 2023 - 24 incident data. A January 2025 gap analysis pinpoints key regulatory blind spots, quickly feeding into the design of real-time dashboards & modular audit playbooks for each technical stream. February & March are allocated to stress-testing this architecture via simulation sprints, ensuring readiness for a finalized compliance framework by April. With assurance submitted to the FIA by mid-May, this timeline ensures Ferrari can demonstrate not only technical excellence but also regulatory foresight, safeguarding against homologation or race-weekend disruptions.

6.2. Phase View: Strategic Development Milestones

Phase	Timeline	Main objectives	Key Deliverables
1. Regulatory foundation & Vision Framing	Q3 – Q4 2024	- Deep dive and align with 2026 FIA regulations - Define system architecture and R&D direction - Validate early technical concepts	- HY-REIGN: System blueprint, thermal modeling, digital twin - AeroNext: CFD dataset, Gen 1 AI airflow model - Veloci Agile: Org health analysis, pilot agile squads - Lean Lab: MVP pipeline framework, 1st prototype
2. R&D Execution	Q4 2024 – Q1 2025	- Confirm performance of early-stage PU and Aero - Launch structured testing in controlled environments	- HY-REIGN: Prototype (MGU-K), dyno test, on-track readiness - AeroNext: Smart DRS logic, Gen 2 AI, hybrid validation - Veloci Agile: Agile playbook, cross-functional retros - Lean Lab: AI-driven CAD, failure dashboard
3. Integration & Risk Readiness	Q1 – Q2 2025	- Integrate insights to refine full-system coherence - Advance toward technical and operational maturity - Prepare for compliance and manage strategic risk	- HY-REIGN: Final PU iteration, QA checklist, homologation prep - AeroNext: Smart wing CAD, full system test - Lean Lab: Lean Lab 2.0 launch - Zero Failure: Regulatory gap analysis, compliance dashboards
4. Operational Finalization & Launch Preparation	Q2 – Q4 2025	- Secure 2026 PU and aero homologation - Finalize performance and reliability governance - Execute Lean/Agile innovation loop	- HY-REIGN: Final test cycle, PU freeze - AeroNext: FIA submission, homologation buffer - Lean Lab: Cost-efficiency report, 2026 test part validation - Veloci Agile: Org-wide agile expansion
5. Race deployment & Continuous Innovation	Q1 2026 onwards	- Transition to race-ready configuration and feedback loop - Finalize based on feedback from FIA (if any)	All Streams: AI upgrade triggers, continuous lean R&D loop, risk simulation, zero-failure control roll-out

(Figure 8. All projects by phase - Strategic Development Milestones (Author's work, 2025))

The program's five-phase roadmap aligns Ferrari's innovation cycle with the FIA's 2026 regulatory milestones while embedding organizational & operational resilience. Phase 1 (Q3–Q4 2024) establishes the regulatory & technical foundation, defining PU architecture, training initial AI models, & launching agile pilot squads. Phase 2 (Q4 2024 - Q1 2025) focuses on R&D execution via controlled testing, validating critical modules like the MGU-K & adaptive aero systems. Phase 3 (Q1-Q2 2025) focuses on full-system integration, refinement, & compliance preparation, laying the groundwork for homologation. Phase 4 ensures operational readiness, with final test cycles, governance systems, & cost-cap tooling in place well before the 2026 Q1 onwards. The timeline is designed to be front-loaded to de-risk the FIA deadline, allowing a buffer for changes & feedback adjustments.

7. Ferrari 2026 Project – Budget Allocation

Our project budget has been carefully mapped to the development roadmap's four main phases, ensuring spending matches the real needs at each stage. In the initial Regulatory Foundation & Vision Framing phase, about 15% of the budget is invested in getting a handle on the new FIA rules & figuring out the project's direction. This includes setting up the groundwork to run the entire project (see *Table- Budget split by Project Phases below*).

Phase	Objectives	Budget Share (%)
1. Regulatory Foundation & Vision Framing	Understand 2026 FIA regulations, define system architecture and R&D direction, validate early technical concepts	~15%
2. R&D Execution	Validate functional modules, start bench and track testing, improve AI feedback cycles	~40%
3. Integration & Risk Readiness	Integrate early feedback, consolidate PU/hybrid/aero packages, prepare compliance and risk documentation	~25%
4. Operational Finalization & Launch Preparation	Secure homologation, finalize performance and reliability governance, operationalize lean/agile innovation loop	~20%
5. Race Deployment & Continuous Innovation	Transition to race-ready configuration, enable in-season upgrades and continuous innovation	~0%

Table 1 - Budget split by Project Phases

As we move into the R&D Execution phase, 40% of the budget is spent. This is where the heavy lifting happens, with all the hands-on work, testing, & problem-solving. Integration & Risk Readiness comes next & takes up 25%. This part is key for pulling everything together & making sure nothing slips through the cracks when it comes to compliance. The last chunk, 20%, goes to Operational Finalization & Launch Preparation. That's where the team locks in approvals & gets everything ready for launch. As for the final phase-Race Deployment & Continuous Innovation-there's no extra budget set aside. By that point, the groundwork's already been laid, so the focus shifts to making the most of what's already in place. This phased approach ensures that every critical milestone is properly funded, enabling Ferrari to stay agile, compliant, & competitive as the 2026 season approaches.

The budget has also been allocated into 9 different project areas, where nearly half of the budget (101 million) is allocated to Ferrari's R&D & Aero PU prototyping- the major changes that are required by the 2026 mandate. The budget allocation aligned with Ferrari's strategic pillars linked to the projects is given in the table below.

Project Area	Allocation (USD)	% of Total	Linked Strategic Pillar(s)	Key Focus
R&D and Engineering Development	$70 M	35%	HY-REIGN, Lean Innovation Lab	Hybrid PU design, ICE/MGU-K R&D, digital twin, rapid prototyping, MVP cycles
Simulator and Driver Systems	$14 M	7%	Veloci Agile, Lean Innovation Lab	Advanced sim rigs, AI-in-the-loop, digital workspace, driver feedback integration
Active Aero & PU Prototyping	$32 M	16%	AeroNext, HY-REIGN	Aero R&D, DRS/CFD-AI, wind tunnel, PU hardware prototyping, smart wing dev
Sustainable Fuel Integration	$10 M	5%	HY-REIGN	Shell partnership, calibration, and sustainable fuel testing
Race Strategy & Data Systems	$12 M	6%	Veloci Agile	Real-time analytics, strategy dashboards, weather/modeling tools
Compliance & Legal Oversight	$9 M	5%	Zero Failure Framework	Regulatory assurance, audit playbooks, risk dashboards
Project Management & Reporting	$9 M	5%	Lean Innovation Lab, Veloci Agile	PMO, reporting, agile governance, cross-pillar coordination
Training & Logistics	$16 M	8%	Veloci Agile, Lean Innovation Lab	Pit crew, workshops, global logistics, cross-functional training
Reserve/Contingency	$8 M	4%	All Pillars	A buffer for unforeseen technical/regulatory costs
TOTAL	**$200 M**	**100%**	-	-

Table 2 - Budget split by Project Area with its strategic pillars

8. Ferrari 2026 Project – Risk Management

Ferrari's 2026 regulatory transition demands a disciplined & anticipatory approach to managing uncertainty. This risk management plan defines how Ferrari will identify, analyse, mitigate, & monitor key risks across technical, financial, strategic, operational, & cultural domains. It aligns with our five strategic pillars & ensures every innovation decision is underpinned by resilience & control.

8.1. Risk Identification Process

Risks were identified through a structured approach that included:

- Alignment with Ferrari's five strategic pillars: HY-REIGN, AeroNext, Veloci Agile, Lean Innovation Lab, & Zero Failure Framework
- Mapping across each project phase: Regulatory Foundation & Vision Framing, R&D Execution, Integration & Risk Readiness, Operational Finalization & Launch Preparation, & Race Deployment & Continuous Innovation.
- Analysis of Ferrari's historical weaknesses & competitive context
- Collaboration with engineering, compliance, project management, & operational teams

This ensures a well-rounded risk landscape grounded in both strategic intent & execution realities.

8.2. Risk Analysis Approach

		CONSEQUENCE				
		Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
LIKELIHOOD	Almost Certain 5	low	medium	high	extreme	extreme
	Likely 4	low	medium	high	extreme	extreme
	Possible 3	low	medium	high	high	extreme
	Unlikely 2	low	medium	medium	high	extreme
	Rare 1	low	low	medium	medium	high

(Figure 9. 5x5 Risk Matrix - Strategic Development Milestones (Author's work, 2025))

To ensure clarity & prioritisation, each identified risk is evaluated using a structured 5×5 matrix scoring system, which assesses the likelihood of occurrence & the impact of the consequence.

8.3. Risk Register with Mitigation Strategies

The risk register captures all high-priority risks across the strategic pillars & project lifecycle phases. It reflects technical, financial, compliance, & operational risks that could impact Ferrari's 2026 strategy delivery. These risks consist of early R&D, integration, & race deployment challenges, with critical thinking applied to the evolving nature of Formula 1.

Risk ID	**Risk Description**	**Strategic Pillar**	**Likeli-hood**	**Impact**	**Risk Level**	**Mitigation Strategy**	**Reasoning for the mitigation strategy**
R1	Delay in hybrid component development or failure to meet benchmark efficiency.	HY-REIGN	4	5	20 - Extreme	Ferrari will manage this risk through a combination of early phased delivery, agile sprint-based integration, & real-time performance tracking using Earned Value	Based on Ferrari's historical & debatable hybrid power unit lag (Williams-Smith, 2020) & the 2026 power unit targets. As of June 2024, Ferrari has

						Management (EVM). Key project milestones — like energy system validation & PU chassis integration — are treated as gated deliverables with strict review checkpoints. This approach helps detect delays early, redirect resources as needed, & ensures hybrid development stays aligned with FIA regulation milestones.	already started working on its 2026 power unit (Ludo van Denderen, 2024).
R2	Failure of X-mode/Z-mode performance under dynamic race conditions.	AeroNext	4	5	20 - Extreme	Create smarter testing systems that simulate real overtaking battles, using AI to learn how X/Z-mode responds. It is based on top of existing simulators, but enhanced with AI & predictive behaviour, not just mechanical	As per 2026 regulations, Z-mode & X-mode are introduced (Barretto, 2024). A lack of strategic integration across design, energy management, & race ops will make Ferrari vulnerable in

						performance. Use forward-looking models to predict what might happen in races, & get different teams (aero, hybrid, strategy) to test how their systems work together.	high-speed races.
R3	FIA cost cap breach due to uncontrolled scope or poor prioritisation.	Lean Innovation Lab	4	4	16 - Extreme	Enforce budget checkpoints tied to design gates. Use ROI-based decision models & visual dashboards to identify resource overcommitment.	Ferrari has faced issues with cost cap rules & overinvestment in 2022 regarding aerodynamics development (Noble, 2022).
R4	Underutilisation of adaptive AI tools during high-pressure race scenarios.	Veloci Agile	4	4	16 - Extreme	Conduct live AI trials in race simulations. Clarify human-machine interaction zones for pit wall & race engineers. Include AI trust calibration & fallback mechanisms.	Inconsistencies in AI decision-making during events such as Spa 2024 highlight the need for clearly defined roles in AI-human interaction. This aligns with agile best practices to improve real-time

							decision-making
R5	Poor correlation between simulation output & real track performance.	HY-REIGN/AeroNext	4	4	16 - Extreme	Expand multi-driver telemetry validation loops. Refine simulators based on track feedback & establish circuit-specific deviation alerts.	Past issues, such as at the Sakhir circuit, indicated that the SF-23 did not demonstrate the potential seen in the simulator (Giuliana, 2023), highlighting the need for more in-depth simulator calibration.
R6	Loss of critical hybrid/aero technical talent to external opportunities.	HY-REIGN/AeroNext	4	4	16 - Extreme	Offer special incentives for key engineers, rotate staff through Ferrari Labs for growth, & create leadership programs to keep top talent.	Reflects common loss of experts in high-tech industries; HR models support proactive retention efforts.
R7	Failure of the MOM system during strategic overtakes or qualifying.	AeroNext	4	5	20 - Extreme	Build contingency response protocols into MOM system testing & conduct validation sprints under track-simulated stress. Use	With MOM replacing DRS for overtaking, a system malfunction during a high-stakes manoeuvre could ruin race prospects. In the 2025 Imola GP qualifying, Ferrari failed to

						cross-disciplinary failure mapping from past qualifying misfires to refine reliability & project handover models.	make it to the top 10 due to poor car performance (Ferrari, 2025). Using agile feedback loops & strict project tracking, Ferrari can ensure launch resilience.
R8	Budget misallocation from over-investing in low-return modules	Lean Innovation Lab	4	4	16 - Extreme	Review each project module based on its potential value, & involve senior management in funding decisions to avoid waste.	In Barcelona 2023, Ferrari's unproductive upgrades did not help gain points (Mitchell-Malm, 2023). Lean thinking helps avoid this by focusing resources on what brings the best performance gains.
R9	Misalignment between the power unit & the aero strategy due to siloed development.	Cross pillar	4	4	16 - Extreme	Schedule cross-pillar planning sprints, use shared performance dashboards, & conduct technical interlock retrospectives.	Regular coordination through shared goals & open communication improves team alignment & prevents mismatches between the power unit & the aero team.
R10	Delays in	Lean	3	3	9 - High	Strengthen	Although Ferrari

	component rollout due to unexpected regulatory compliance changes or resource reallocation during R&D.	Innovation Lab				in-house validation & testing for critical parts. Build additional manufacturing capacity & create parallel production workflows for time-sensitive components.	produces all major components in-house, unexpected test failures or capacity overloads can cause delivery delays. To meet tight pre-season deadlines, contingency in production flow is essential.
R11	Cybersecurity breach affecting IP or telemetry during a critical race window	Zero failure framework	2	4	8 - High	Deploy end-to-end encrypted telemetry, isolate mission-critical data nodes, & conduct red-team drills.	In 2022, Ferrari suffered a ransomware attack & an NFT scam, during which RansomEXX stole internal documents, datasheets, & information totaling 7GB after terminating its partnership with Kaspersky for cybersecurity (Raath, 2023).
R12	Strategic breakdown or miscommunication between the driver & the race engineers during key	Velocity Agile/Race Ops	4	3	12 - High	Conduct regular high-pressure simulation training between race engineers & drivers.	Past team radio confusion occurred at the Saudi Arabian Grand Prix in 2023 between Charles Leclerc & team strategists

	decisions.					Introduce standardised decision trees for in-race communication.	regarding race strategy, resulting in a finish in P7 (Walker, 2023).
R13	Operational execution errors during pit stops or grid preparation.	Race Ops	2	4	8 - High	Introduce advanced pit crew analytics, integrate real-time decision protocols for pit lane operations, & conduct simulation stress drills during race weekends.	The 2024 Las Vegas GP showcased how last-minute communication errors in the pits cost Ferrari valuable time. Poor strategic clarity & inadequate coordination between Carlos Sainz & race engineer Riccardo Adami led to a drop to P3 (F1, 2024).
R14	Strategic failure to optimise tyre allocation across the race weekend under evolving FIA regulations.	AeroNext /Race Ops	3	3	9 - High	Integrate FIA rule-specific tyre strategy planning tools. Establish a cross-functional review between engineering & strategy teams pre-race to align compound usage with forecasted stint models.	Ferrari made poor strategic decisions regarding the tyre choices & pit stop timing, which cost them points & track position in Melbourne, Imola, & the Spanish GP in 2022 (Chiu, 2022).
R15	Breach of tyre regulations	Race Ops/Compliance	3	3	9 - High	Embed real-time tyre allocation	Ferrari was fined €5,000 during the 2025

	during competitive sessions.					tracking into live race operations using FIA-aligned software. Establish a dedicated race compliance cell responsible for tyre usage decisions & immediate alerts.	Imola GP practice for violating tyre pressure rules on Charles Leclerc's car. The FIA noted that Ferrari acknowledged not following the required procedures for tyre pressures, which are in place for safety (Hunt, 2025).

Table 3 - Risk Register based on strategic pillars

8.4. Risk Monitoring & Control

Ferrari uses a proactive, continuous monitoring system embedded within the strategic execution process:

- Monthly live dashboard updates & risk heatmaps via digital project tools
- Executive Risk Board reviews top risks each month & authorises mitigation funding
- Red flag escalation protocol tied to scoring thresholds (e.g., score ≥20 triggers review)
- Audit-readiness checkpoints before major compliance milestones (e.g., FIA submission)
- Cross-pillar retrospective reviews after each sprint cycle to refine the ongoing risk profile

This ensures risks are not only controlled, but also used to enhance decision-making & responsiveness.

8.5. Risk Governance Model with KPIs

Ferrari's risk governance model for the 2026 transition involves an integrated, data-driven, & decision-oriented system with multiple layers:

Ownership & Accountability:

- Each risk is assigned to a strategic pillar lead (e.g., HY-REIGN, AeroNext).
- The Project Management Office (PMO) oversees integration & escalation protocols.

Oversight Structure:

- Monthly risk reviews by Ferrari's technical board.

- Quarterly cross-functional retrospectives involving PU, aero, finance, & race ops.

Real-Time Monitoring & Compliance:

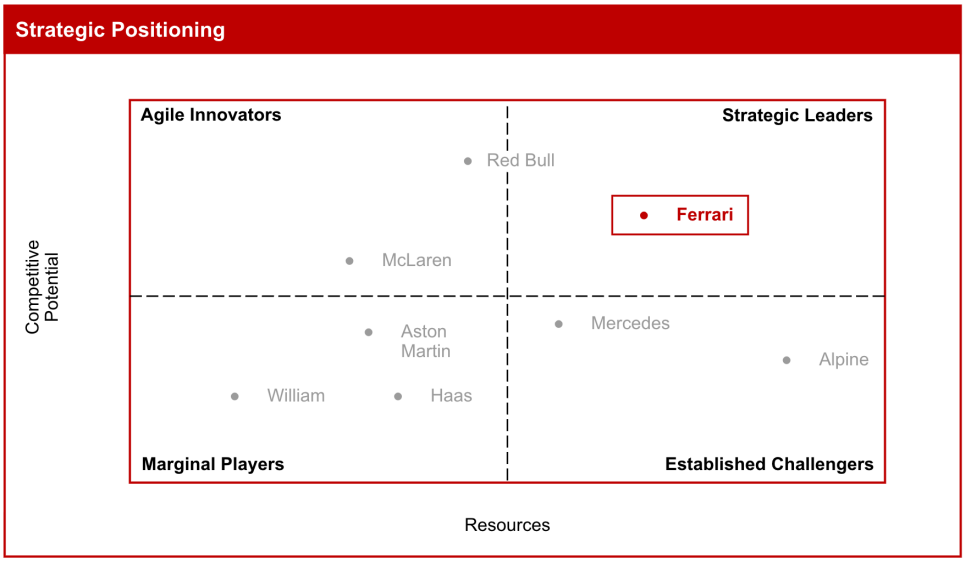
- Implementation of live dashboards tracking risk exposure.
- Use of predictive analytics to flag threshold breaches (e.g., budget, testing delays).

8.5.1. Key Risk KPIs:

- Hybrid System milestones met on time
- Aero Efficiency Variance (Wind Tunnel vs On-Track)
- Cost Cap Deviation Index
- Cross-Team Integration Score
- Tyre Strategy Accuracy Index
- In-Race Communication Error Rate
- Technical Penalty Avoidance Rate

9. Final Justification – Why This Plan is the Best

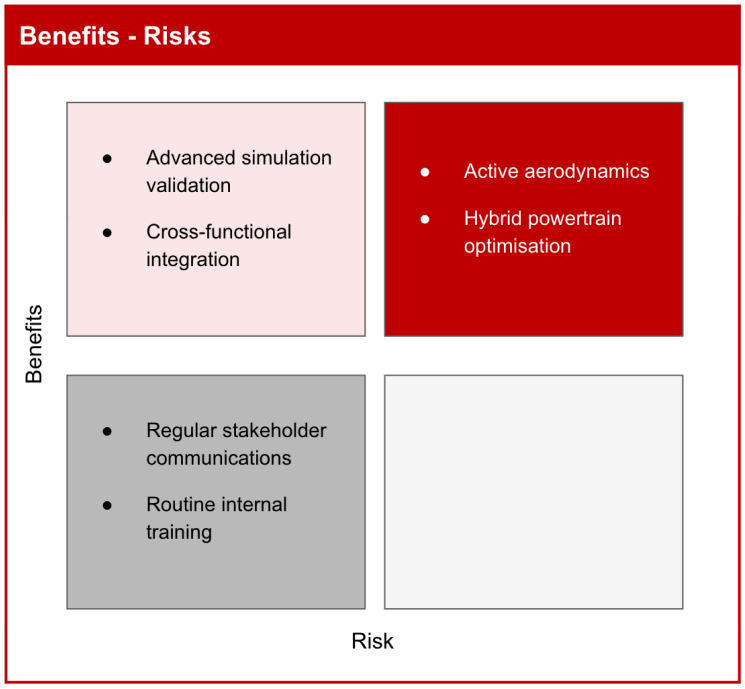
In general, this project plan stands out for its holistic approach to regulation alignment, innovation drive, & legacy advantages. Ferrari's position as a **Strategic Leader** is driven by its substantial legacy resources, extensive infrastructure, hybrid experience, & strong potential under the new regulatory landscape



(Figure 10. 5x5 Strategic Positioning of Ferrari - Strategic Development Milestones (Author's work, 2025))

9.1. Key benefits

Unlike competitors who may focus on single-system improvements, Ferrari's approach is combinatory, including:



(Figure 11. Key Benefits against Risk - Strategic Development Milestones (Author's work, 2025))

- Holistic & Early Regulatory Alignment

Ferrari's strategy focuses on comprehensive integration with the aforementioned regulatory mandates. Aggressive early-mover prototyping & advanced data-driven simulations ensure technical readiness & proactive adaptability. In contrast, competitors like Mercedes & Audi, who face recent performance struggles or brand new operations, are comparatively delayed in moving forward to operational stability.

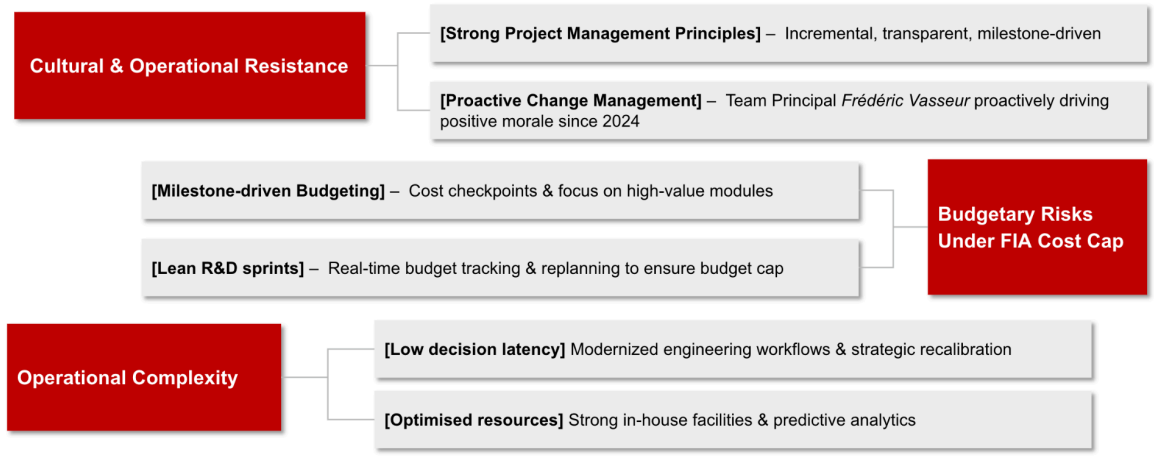
- Operational Agility & Stakeholder Integration

Decades of hybrid & aerodynamic excellence uniquely equip Ferrari with advanced in-house facilities, significantly mitigating risk compared to competitors initiating completely anew. Furthermore, implementation of agile methodologies & lean innovation practices would improve organisational speed, resource efficiency, & reduce decision latency, which are all critical under dynamic competitive conditions.

- Structured Risk Governance & Balanced objectives

With robust risk management frameworks, clear milestone-driven resource allocation, & structured contingency planning, reduce risks associated with technological complexity & budget limitations. Balanced resource allocation supports both short-term wins & long-term innovation, & avoids low-risk-low-rewards goals. This addresses its past weaknesses through modernized engineering workflows & strategic recalibration.

9.2. Drawbacks & Mitigation



(Figure 12. Drawbacks & Mitigation - Strategic Development Milestones (Author's work, 2025))

- Cultural & Operational Resistance:

Ferrari faces potential internal resistance to new structural methodologies. Fortunately, gradual implementation, clear communication of benefits, & incentivisation linked to strategic milestones would play pivotal roles in mitigating the risks. Furthermore, it has been noted that Vasseur has shown efforts in breaking down cross-departmental blockages, reducing decision latency, & improving morale.

- Budgetary Risks Under FIA Cost Cap:

High R&D investments risk exceeding the stringent financial regulations. Rigorous financial governance, contingency planning, & advanced cost tracking systems maintain expenditure within FIA regulatory limits.

- Complexity of Operational Integration:

The ambitious technical scope introduces substantial complexity & the risk of operational friction, especially with hybrid & aero systems. This project aims to reduce decision-making latency through modernised workflows & integrated dashboards.

10. Conclusion – Anticipated Impacts & Outcomes

Overall, Ferrari's strategic response to the regulation overhaul represents more than just a technical evolution. Via closely aligning with FIA's regulatory goals of sustainability, efficiency, & close racing, Ferrari is well positioned to reassert its legacy in a modernized F1 landscape.

Through a structured project management approach using tools like SWOT, WBS, Risk Register, & Gantt scheduling, the team aims to address the multifaceted challenges posed by new mandates. Each element of the strategic plan—from engineering to race-day simulation—has been carefully mapped out to ensure readiness by Q1 2026.

Ultimately, Ferrari's 2026 strategy is a strategically phased, regulation-driven initiative that integrates agile execution, simulation-led development, & strong stakeholder alignment. This plan promises substantial & measurable competitive, operational, & commercial outcomes.

11. Glossary of Acronyms (Appendix)

Acronym	Meaning
FIA	Fédération Internationale de l'Automobile
GP	Grand Prix
CFD	Computational Fluid Dynamics
MGU-K	Motor Generator Unit – Kinetic
PU	Power Unit (includes ICE + ERS + Turbo + control systems)
Aero	Aerodynamics
ICE	Internal Combustion Engine
DRS	Drag Reduction System
X-Mode	Low-drag configuration
Z-Mode	High-downforce configuration
MOM	Manual Override Mode
WBS	Work Breakdown Structure
Gantt	A visual project timeline chart
5x5 Risk Matrix	A project risk tool categorizing likelihood vs. impact
Tifosi	Ferrari's loyal fan base
Sim	Driving Simulator
AI	Artificial Intelligence

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