FRESH IDEAS

FOR LEVELLING THE PLAYING FIELD IN FORMULA ONE AND BEYOND

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Fresh Ideas, For Levelling The Playing Field In Formula One And Beyond

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PREFACE

This piece is inspired by two individuals; Nico Rosberg and Lewis Hamilton. The battle between Nico and Lewis was epic and sensational! Nonetheless, it was particularly disturbing to realise that only two drivers could effectively compete for the Drivers' Championship. "If two drivers can make the competition this exciting", I imagined, "then, what will be the outcome, if every driver has equal opportunity to compete for the Drivers' Championship?" This concern eventually led to the conception of chapter one and chapter three. While chapter two is inspired by the idea of Formula One to level the playing field with respect to the starting order.

Motor sport is quite simply, one of the most spectacular sport on the planet. For over a century, it has thrived among fans and enthusiasts. However, we have been putting up with certain uncompetitive situations in the sport. So, in this piece, we shall make an illustration of the Formula One Championship in considering these uncompetitive situations. And shall develop effective instruments that can be adopted to level the playing field in various motor sport championships. I shall be radical enough, in my approach, to be effective and yet delicate enough to preserve the rich and cherished heritage of motor sport. Now, let's fasten our seat belts and get started!

CHAPTER ONE

THE CHAMPIONSHIPS

The concept of having a dual-championship season is an excellent one. This is because Formula One, by nature, is both a team sport and at the same time, an individual sport; which for me is a much cherished heritage. But the most characteristic and prominent heritage of Formula One is technology. It is, desirably, the most technological sport in the world. In addition, Formula One consists of a driving competition as well as a technical competition. What is more, the technical competition is so integral to Formula One that it strongly influences: the outcome of the driving competition; the safety; the spectacle; and even the sustainability of the sport.

However, Formula One has suffered, significantly, from the problem of intertwining the two contrasting and conflicting championships of the constructors and the drivers. The problem lies in the fact that the same points that count towards the Drivers' Championship for the individual drivers of the teams; also count towards the Constructors' Championship for the teams. Furthermore, the ferocious competition between the engineers in Formula One has made the battle for the Drivers' Championship grossly uncompetitive among the drivers. This is why it is almost impossible for even the most talented driver in the world to win the Drivers' Championship with the less performing teams. Ironically, the basis for a Drivers' Championship is not to determine the best team, but to determine the best driver in a season. By implication, a level playing field for the Drivers' Championship entails providing cars of identical performances for every driver to compete in, for the entire season. Otherwise, such an individual sport competition is unacceptably uncompetitive.

The essence of an individual sport is to fight for individual glory and supremacy. On the other hand, the essence of a team sport is to collectively fight as a team, in team spirit and camaraderie; for the honour and supremacy of the team. In a team event, a player can readily concede for the overall benefit of his team. An example is a goal “assist” in football. A football player can concede his opportunity of scoring a goal and pass the ball to a teammate who has a better chance of scoring the goal. But, conflict of interest will arise if a team event is simultaneously an individual event. This is what happens in Formula One when a team favours one driver over the other, in the course of a race, with the intent of protecting its interest in the Constructors' Championship and even in the Drivers' Championship; to the detriment of the Drivers' Championship ambition of the less favoured driver. Although this practice, by Formula One teams, has long been in existence; it is unacceptable for a sport competition. Every driver should be given equal opportunity to compete for the Drivers' Championship irrespective of who is favourite to win the championship. This is the essence of a sport competition.

It is possible to preserve the technological and dual-championship heritage of Formula One, and yet make Formula One genuinely competitive both as a team sport and as an individual sport. Also, it is possible to promote team spirit and camaraderie among teammates in the quest for the Constructors' Championship, and yet have a healthy, competitive, fair and square rivalry for the Drivers' Championship; which is an attribute Formula One is in dire need of.

THE SOLUTION

An effective solution is to have separate and alternating Grands Prix for the Constructors' Championship and for the Drivers' Championship. So, for instance, if there are 16 Grands Prix in the calendar; 8 Grands Prix will be dedicated to the Constructors' Championship; while the other 8 Grands Prix will be “Drivers' Grands Prix”. Furthermore, a Formula One season will comprise of alternate Drivers' Grands Prix and “Constructors' Grands Prix”. In addition, the circuits for these events will alternate in the succeeding season. And the first Grand Prix of each season will alternate between the two championships. Thus, if a Grand Prix weekend is a Constructors' Grand Prix, then the next Grand Prix will be a Drivers' Grand Prix. If a season's Monaco Grand Prix is a Drivers' Grand Prix, then the following season will have a Monaco Constructors' Grand Prix. And if a season starts with a Drivers' Grand Prix, then the next season will commence with a Constructors' Grand Prix. The purpose for this alternating approach is to make the two separate Grands Prix as equivalent as possible with little or no differences between them in terms of venue, time of the year, type of circuit and so on. Also, we do not want local fans to keep coming to watch only one of the Grands Prix every season.

Having separate Grands Prix with different objectives is not strange to Formula One. There have been championship and non-championship Formula One Grands Prix in times past; which is comparable to having separate Constructors' Grands Prix and Drivers' Grands Prix. This is a basic necessity for Formula One, as it will effectively shield the sensitive competition among the drivers for the drivers’ crown; from the fierce technical competition of the engineers in the Constructors' Championship. This means that the varying car performances of each team in the Constructors’ Championship; will no longer affect the competition of the drivers in the Drivers’ Championship. And that, drivers can then compete with cars that have identical performances in the Drivers' Championship.

As a result, the racing points that counts towards the Constructors' Championship will be independent of the Drivers' Championship points. A consequence of this, is that, the individual interests of drivers in the Drivers' Championship will be protected from the collective interests of their teams in the Constructors' Championship. So, drivers can fight individually for the Drivers'

Championship but unite as teammates, in each team, to fight for the constructors' title. Moreover, it will no longer constitute a competitiveness problem for a set of drivers to have significantly dominant cars over the rest of the grid; since the technical activities that brings about the varying car performances is a part of the constructors' competition. This means that, performance in a Constructors' Grand Prix is a product of teamwork among the "technical players" and the "racing players". Thus, the Constructors' Grands Prix will be about team spirit and camaraderie. Furthermore, collective activities such as race strategy and team order will be emphasised in the Constructors' Grand Prix. The winner of a Constructors' Grand Prix will not be the driver that claims the highest racing points for the event; but the team whose drivers collectively secure the highest racing points in such event. And the honour of winning goes to the entire team and not just the drivers. Resultantly, podium-finishing teams will be represented, on the podium, by their team principals; while the drivers will join the rest of the team as they celebrate.

On the other hand, the Drivers' Grands Prix will be about raw talent and driving skill. We want to know who is truly the greatest, most gifted, most daring and most exhilarating racing driver of them all! And we want to enjoy the spectacle of this sort of competition. We have often heard the narrative that a driver is winning because he has the fastest car. Or a driver is not winning because he is in an uncompetitive car. It is unfair when a talent finds himself in an uncompetitive car. It is also unfair when a talent's achievement is attributed to his car. The Drivers' Grands Prix will put an end to all these; as talent and driving skill will be the emphasis of such events. Consequently, such activities as team order, strategy call and routine pit stop will have no place in the Drivers' Grands Prix. The gladiators of the circuit will be made to fight themselves without help from their teams; with the exception of rendering services that are basic to racing, such as replacement of damaged car parts. We do not want to see that a team's superior strategy is the decisive factor of a Drivers' Grand Prix. Rather, we strongly desire the outcome of every Drivers' Grand Prix to be solely dependent on the individual effort, talent and skill of the drivers; just like it is with boxing, sprint and other individual sports.

Moreover, reliability will be the hallmark of the Drivers' Grands Prix. We do not want drivers to concede valuable points due to reliability issue; as such an occurrence will make the Drivers' Grand Prix "technically uncompetitive". Whatever will cause a technical failure of any sort or the undue disruption of a driver's race must be eliminated. I have never heard that the unreliability of an athlete's spikes made him to lose a race. The comparison might sound silly, but such should be the case for a racing driver and his car in a drivers' event. The cars should be made so reliable that reliability issues during a Drivers' Grand Prix is impossible; and this is attainable with the scale of technical prowess possessed by Formula One teams. Furthermore, the tires must be made to last an entire Drivers’ Grand Prix race, without any form of deterioration, degradation, loss of grip or traction or whatever; regardless of a driver's driving style. We want to see pure racing and hot pursuits; not tire management and tire strategy.

However, the most basic consideration for the Drivers' Grands Prix as well as the Constructors’ Grands Prix; is that every driver has equal opportunity to compete for a win. We shall be considering this in the next chapter. Furthermore, it is compulsory for the Drivers' Grand Prix cars to be of identical performances; for the Drivers' Championship to be regarded as a sport competition for drivers. And it is necessary that Formula One cars; both in the Drivers' Championship and in the Constructors’ Championship; do not have technical characteristics that unduly and adversely affect the competitiveness and spectacle of the sport; such as the overtaking difficulties attributed to the aerodynamic characteristics of modern Formula One cars. How do we address the uncompetitive situation that stems from the undesirable technical attributes of the cars? More importantly, how do we provide cars of identical performances for the Drivers' Championship? And most importantly, how can we cultivate a reliability culture in Formula One? Details will be presented in chapter three. Let us move on to chapter two.

CHAPTER TWO

THE GRID

Unlike athletics, it is impossible to position every car on the same starting line at the start of a race. But like athletics, the race outcome is sensitive to the positions of drivers at the start of the race. That is to say, if an athlete starts at the front of his rivals, he has an advantage to win; and the same is true for Formula One. In fact, it is rare for even the best drivers with the fastest cars to win a race from the back of the grid. In order to resolve this problem, there exist a qualifying system such that drivers can fight for favourable grid positions. This is a step in the right direction. But it in itself creates yet another problem. It doubles the advantage that the more skilful drivers have over the rest of the grid. The initial advantage of these drivers is that they are more skilful and therefore faster. Skill is a fair advantage and is one of the qualities that we celebrate in sport competitions.

However, by means of the qualifying system, these more skilful drivers are able to earn the privilege of starting races at the front of the grid. To place the faster drivers at the front of the grid because they earned these positions during qualifying is comparable to placing, let us say, an Usain Bolt in front of his rivals because he is faster. Consequently, such an event is uncompetitive. On the other hand, it would also be uncompetitive to have the faster drivers start races at the back of the grid; in a bid to address the double-advantage situation of the qualifying order. This is because the essence of a sport competition is to provide a level playing field for competitors to compete irrespective of who is more or less skilful. This is why goalposts and the two halves of a field, in field events, have the same dimensions. This is also why athletes at the start of races have equal distances from the finishing line.

THE SOLUTION

Although, it is practically unattainable to place all the racing cars on the same starting line and equidistant from the chequered flag at the start of a race, in a manner similar to what obtains in athletics; it is, however, possible to create a mathematical equivalent of the above unattainable situation, by adopting a dual-race format and a complementary points system. The essence of the second race and the points system, is to effectively create a level playing field for every driver on the grid regardless of the grid order for the first race.

The points system is designed to reward every overtake with a “point advantage” just as every goal scored in football is rewarded with a point. Imagine that a driver starts an hypothetical 20-car race right at the back of the grid, but goes on overtaking the 19 cars in his front to take the lead of the race. This means, he now has a 19 points advantage since he made 19 overtakes. If he goes on to win the race in this position, he will earn 19 points for the race. An important implication of this illustration is that the driver who starts on pole in, let us say, a 20-car race automatically has a 19 points advantage; at the start of a race, by virtue of his grid position; over the driver that starts at the back of the grid. An analogy to this is potential energy which is the energy possessed by an object because of its position. In contrast, the driver at the back of the grid starts the race with a zero point advantage. Consequently, a dual-race format consisting of two identical but reverse-grid races is of the essence to level the playing field in a Grand Prix.

Imagine an hypothetical 20-car race in which all 20 drivers raced with exact levels of performance and there was not a single overtake. Resultantly, each of them took the chequered flag in the same position as each started the race. As obtains presently, the driver who started from pole in the above race is the winner of this race and receives 25 points which is the highest per race. But each of the 20 drivers raced with exact levels of performance; so much so that none could overtake the other. This implies that all 20 drivers should be awarded equal number of points. It also indicates that the fastest driver in a race, who by implication is the effective winner of such a race; may not be the first to take the chequered flag, considering the fact that the drivers started the race in different grid positions; and as such, he may not be the official winner of the race.

To address these problems, an identical but reverse-grid race is essential in the same Grand Prix event. This second race is identical to the first race, but the grid order at the start of the race is a reversal to that of the first race. Imagine that, in this second race, all 20 drivers also raced with exact levels of performance and there were no overtakes. In addition, each of the drivers took the chequered flag in the same position as each started the race. Table 2[a] presents the Grand Prix results of the drivers using the dual-race format and its points system.

Table 2[a]:

DRIVER	*1ST RACE POSITION*	*2ND RACE POSITION*	*1ST RACE POINTS*	*2ND RACE POINTS*	*GRAND PRIX RESULT*
A	1ST	20TH	19	0	*19*
B	2ND	19TH	18	1	*19*
C	3RD	18TH	17	2	*19*
D	4TH	17TH	16	3	*19*
E	5TH	16TH	15	4	*19*
F	6TH	15TH	14	5	*19*
G	7TH	14TH	13	6	*19*
H	8TH	13TH	12	7	*19*
I	9TH	12TH	11	8	*19*
J	10TH	11TH	10	9	*19*
K	11TH	10TH	9	10	*19*
L	12TH	9TH	8	11	*19*
M	13TH	8TH	7	12	*19*
N	14TH	7TH	6	13	*19*
O	15TH	6TH	5	14	*19*
P	16TH	5TH	4	15	*19*
Q	17TH	4TH	3	16	*19*
R	18TH	3RD	2	17	*19*
S	19TH	2ND	1	18	*19*
T	20TH	1ST	0	19	*19*
			190	*190*	*380*

In evaluating the Grand Prix result of Table 2[a], one can observe that the results of the drivers are an accurate reflection of their relative performances in the hypothetical Grand Prix. Also, for a 20-car dual-race Grand Prix, 19 points is the average a driver can get. It indicates an average performance relative to the competition. The highest attainable points for such a Grand Prix is 38 points. And it is possible for a driver to get the lowest possible of zero point in the Grand Prix. Moreover, every driver has equal number of opportunities to overtake and equal number of possibilities to be overtaken in a Grand Prix. This means that every driver has equal opportunity of securing or conceding points in a Grand Prix.

What is more, it is now possible to determine the best performing driver in a Grand Prix event regardless of the starting order. The winner of the Grand Prix is not necessarily the first driver to take the chequered flag, but the driver that accumulates the highest points from the two races. This implies that he attained the greatest difference between the number of overtakes he made and the number of overtakes made on him; in the two races of the Grand Prix and is resultantly the fastest driver of the Grand Prix.

Furthermore, the number of points available for a Grand Prix is determined by the number of participants. This is because, the points system is an “overtake reward system”. Every overtake earns a point advantage. Consequently, it is an arithmetic progression that begins from the last driver to take the chequered flag and ends with the first driver to take the chequered flag. Also, it has a common difference of one. The last driver to take the chequered flag earns zero point. This is either because he conceded all his points advantage in the process of been overtaken by all the cars behind him; or he started from the back of the grid and was unable to make any overtake. For a 20-car race, the first driver to take the chequered flag in the race earns 19 points. The number of points available for such a race is 190 points. And the number of points available for the Grand Prix is 380 points.

A comparison can be made between the points system for the dual-race format and the law of conservation of energy which states that energy can neither be created nor destroyed but can change from one form to the other. For the dual-race format and its points system to effectively create the much needed level playing field, the number of points available for a Grand Prix must be conserved. This means that points gained or conceded should solely be depended on the positions gained or conceded by the drivers during race sessions and not from external addition or subtraction of points such as points for fastest lap. In addition, it is important for the "starting-grid" race and the "reverse-grid" race to be identical in such details as the race distance, the orientation of the race around the circuit, the number of laps and the race duration. However, natural eventualities such as changing weather can create differences between the two races and bring about unpredictability. Notwithstanding, natural interference is not new to Formula One and has always been an exciting game changer.

Now, drivers should still be given the opportunity to determine the starting order. I am not in favour of devising some other method; other than, some form of competition among the drivers. However, the process of competition tends to filter the top performers from the poor performers. And such can be observed in every sport result. This implies that, if drivers compete for their positions; the resultant grid, will most likely be an arrangement of drivers; according to their levels of performance; from the front to the back of the grid. Consequently, a driver who is among the top performers may deliberately perform poorly; in a competition that is solely meant to determine the starting grid and in which points are not awarded, such as qualifying; with the intent of racing in the group of the less performing drivers; in both the starting-grid and the reverse-grid races. Because, it is easier to make overtakes with this group of drivers, than with the group he belongs to. This will certainly be an unfair advantage over the straightforward drivers.

A copper-bottomed solution to such an unintended situation is to harness the Drivers' and Constructors' Championships; to determine the starting grid of the respective Grands Prix. This is because, it is illogical and counterproductive to deliberately perform poorly and resultantly throw away valuable points; in one or more Grands Prix of a championship; with the intent of having a relatively easier competition in the following Grand Prix; to fight for those same points that were thrown away; when others are fighting to earn more points for their championship ambition. So, the starting grid of every Grand Prix will be determined by the progressing results of the respective championships. The only exceptions are the starting grids of the respective first Grands Prix of a season; which will be determined by the results of the preceding Drivers' and Constructors' Championships. Furthermore, since the Constructors' Championship is a team competition; "racing teammates" will be positioned next to each other, in rows, on the starting grid of a Constructors' Grand Prix; according to the Constructors' Championship order.

So, a Formula One weekend should include a starting-grid race and a reverse-grid race. These races should not be held on the same day. And the reverse-grid race should be saved for the last because it is expected to be the most exhilarating event of the Grand Prix for the following considerations:

- It is easier to win from the front but more challenging to win from the back. And the tougher the challenge, the sweeter the victory. The victories from the back are usually sweeter than the victories from pole position.
- We can expect more exciting action from the best drivers on the grid as they fight from the back. And the good news is; they will fight with motivation as they have been given the merited opportunity of securing points from favourable grid positions in the starting-grid race.
- Furthermore, the winner of the Grand Prix does not have to also be the first to take the chequered flag before the reverse-grid race can be exciting. We have had several races where the drivers who made such races exciting, were not the first to take the chequered flag. A few examples are: Gilles Villeneuve in the 1979 French Grand Prix. Ayrton Senna in the 1984 Monaco Grand Prix and Max Verstappen in the 2016 Brazilian Grand Prix. The 2016 Abu Dhabi Grand Prix was sensational, not because Nico Rosberg was the first to take the chequered flag, but because he won the World Championship under intense pressure and drama!

CHAPTER THREE

THE RULES

Formula One is arguably the toughest sport to formulate its rules and regulations. The technical nature of the sport, in particular, makes it a formidable challenge. Teams are perpetually in a fierce technical competition to outwit each other in having the fastest car on the racing circuit. This ferocious warfare among the engineers has resulted to some of the most advanced technological innovations in the entire motor industry.

However, such ferocity among Formula One engineers has come with considerable concerns for safety, competitiveness and costs. The dire need to tame this ferocity, has kept the governing body on its toes; formulating rules and regulations to curb the excesses of the competition. But, Formula One engineers are clever at spotting loopholes in the rules and regulations to take advantage of in increasing performance. And in many cases, these clever acts have ended up defeating the purpose for such rules and regulations. Consequently, rule change is a frequent occurrence in Formula One. Yet, these frequently changing rules usually turn out to be palliative measures. Nevertheless, the FIA has done sterling work on improving motor sport safety.

Furthermore, the technical-specification approach of formulating rules and regulations; has brought its own undesirable consequences. One of such consequences is that; technical specifications normally compels Formula One engineers to adopt a maximisation approach, instead of an optimisation approach, in solving technical problems. This is due to the fact that they are constrained to work with technical specifications, that usually have less performance and less efficiency than what is forbidden. Resultantly, the resources that would have been gainfully employed in searching for more and more efficient solutions is needlessly expended to claw back performance; using less efficient methods. For instance, ground effect, which is an efficient way of generating downforce; spontaneously found its way into Formula One a long time ago. But out of safety concerns, the governing body outlawed it. Eventually, the move to resolve a safety concern has resulted to a competitiveness problem; as it is difficult for Formula One cars to overtake or follow each other closely due to the dirty air in the wake of the leading car. In an ironic twist, what was banned long ago is in the process of been reintroduced as an efficient solution to the resultant problem.

What if, instead of banning ground effect, there was a means of nurturing it and steering it towards the desired direction of making it safe? How can we foster revolutionary technical solutions among the teams and yet effectively realise the technical objectives of the sport, such as; safety, reliability, competitiveness and sustainability?

THE SOLUTION

The concerned authorities need to take the following steps:

- Discontinue the use of the technical-specification method of checking the excesses of technological innovations in the sport.
- Accord the teams complete liberty to develop their cars with whatever technologies and technical specifications they individually decide are the best solutions. Such liberty will flourish revolutionary technological innovations at an unprecedented level of efficiency, ingenuity and individuality. And by virtue of their efficiency, these solutions will find substantial relevance and practical applications in society. Moreover, technical liberty to the constructors will put an end to the habit of searching for loopholes to exploit in a prescriptive system; which usually results to defeating the purpose for such technical prescriptions. However, the critical technical objectives of the sport will be at stake with the new-found freedom of the teams. This concern leads us to the next step.
- Harness the competition among the teams to realise the technical objectives of the sport; by making the pursuit of these objectives relevant to the realisation of their Constructors' Championship ambition.

Now, the basic goal of a Formula One team is to win. Presently, the only way to do so is by having the fastest car and driver secure the most points in the Constructors' Championship. But, if points can equally be earned from pursuing the technical objectives of the sport in the development of their cars, teams will ferociously fight among themselves to develop the fastest car possible; that best satisfies these technical objectives. In other words, teams will not strive to achieve the spirit of Formula One rules and regulations but will search for loopholes as they compete among themselves to develop the fastest car on the circuit; unless it counts towards winning the Constructors' Championship. And the more relevant, pursuing the sport's objectives is to realising their Constructors' Championship ambition; the more committed the teams will be to pursue the objectives of the sport. Because the singular goal of every team is to win; and they will do anything to win. This tendency forms the basis for our solution.

So, the technical competition among the teams; to develop the fastest car for the Constructors' Championship; will be transformed into a fully-fledged sport competition with "technical positions" and "technical points". Of course, it would be counterproductive to award technical points to the teams; according to the speed-related performances of their cars. This will amount to a points-duplication error; since there is a direct relationship between a car's speed-related performances and the ability to secure racing points. Rather, the idea is to motivate the teams to assiduously pursue the sport's technical objectives; in the development of their cars.

Therefore, the Constructors' Championship will consist of both a racing competition and a technical competition. The racing competition entails the technical players competing among themselves to develop the fastest car possible for their racing teammates to compete for racing points. While the technical competition involves the technical players competing among themselves to earn technical points from realising the technical objectives of the sport; in the development of their cars. We shall develop a "technical points system" that is characteristic of and complementary to the racing points system which we developed in chapter two. Also, we shall develop a technique for assessing the performances of the teams in the technical competition, in order to determine their technical positions. By the way, I wish to advise my esteemed reader that; from this point, things are going to get a bit more “technical”. So, brace yourself! Oh, don't worry about the involved details! The concerned authorities will see to them.

Let us now develop the technical points system. Technical points are staked on each technical position in the technical competition. And they are designed to be equivalent to the racing points. The purpose for this equivalence is to ensure that; neither of these competitions renders the other irrelevant; to the Constructors' Championship ambition of the teams. That is to say, teams will have to excel in both competitions to stand a chance of winning the Constructors' Championship. Thus, there are as many technical points up for grabs as there are racing points in a Constructors' Championship. But, how do we determine the obtainable number of racing points; for every team position in a race, Constructors' Grand Prix and Constructors' Championship; such that we can stake equivalent technical points on the corresponding technical positions?

Imagine an hypothetical Constructors' Grand Prix of 10 teams. The most dominant team achieves the highest attainable feat of one-two finishes in the starting-grid race and reverse-grid race. Also, the second most dominant team achieves the highest possible second place finish for this Grand Prix; considering the fact that the most dominant team did not concede any of the two most attainable racing positions in the races; by clinching three-four finishes in the starting-grid race and reverse-grid race. Moreover, the third most dominant team achieves the highest possible third place finish for this Grand Prix by claiming five-six finishes in both races of the Grand Prix. This pattern continues to the least dominant team. Furthermore, these teams go on to replicate their respective performances, in this Grand Prix, in the other 7 Constructors' Grands Prix of an 8 Constructors' Grand Prix season. Tables 3[a] and 3[b] presents the results.

Table 3[a]:

TEAM	DRIVER	STARTING-GRID RACE POSITION	REVERSE-GRID RACE POSITION	STARTING-GRID RACE POINTS	REVERSE-GRID RACE POINTS	GRAND PRIX RESULT
A	A_1	1ST	1ST	19	19	38
	A_2	2ND	2ND	18	18	36
B	B_1	3RD	3RD	17	17	34
	B_2	4TH	4TH	16	16	32
C	C_1	5TH	5TH	15	15	30
	C_2	6TH	6TH	14	14	28
D	D_1	7TH	7TH	13	13	26
	D_2	8TH	8TH	12	12	24
E	E_1	9TH	9TH	11	11	22
	E_2	10TH	10TH	10	10	20
F	F_1	11TH	11TH	9	9	18
	F_2	12TH	12TH	8	8	16
G	G_1	13TH	13TH	7	7	14
	G_2	14TH	14TH	6	6	12
H	H_1	15TH	15TH	5	5	10
	H_2	16TH	16TH	4	4	8
I	I_1	17TH	17TH	3	3	6
	I_2	18TH	18TH	2	2	4
J	J_1	19TH	19TH	1	1	2
	J_2	20TH	20TH	0	0	0
				190	190	380

Table 3[b]:

TEAM	TEAM POSITION	RACING POINTS PER RACE	GRAND PRIX RACING POINTS	CONSTRUCTORS' CHAMPIONSHIP RACING POINTS
A	1ST	37	74	592
B	2ND	33	66	528
C	3RD	29	58	464
D	4TH	25	50	400
E	5TH	21	42	336
F	6TH	17	34	272
G	7TH	13	26	208
H	8TH	9	18	144
I	9TH	5	10	80
J	10TH	1	2	16
		190	380	3040

The racing points for each team position in table 3[b] are equivalent to the technical points that are staked on each corresponding technical position. The technical points are also an arithmetic progression, but have a common difference of: 4 points in a race; 8 points in a Grand Prix, and; 64 points for a season of 8 Constructors' Grands Prix. In addition, the arithmetic progression start from: 1 point for a race; 2 points for a Grand Prix; and 16 points for a season of 8 Constructors' Grands Prix.

As we know, racing points are progressively earned throughout the season in every race. This is good for the following of the sport; as fans will be treated to spectacular races in the course of the season. However, it is critical that we stake the obtainable technical points for an entire season; on the corresponding technical positions. This is because, the realisation of the critical technical objectives of the sport is utterly dependent on the commitment levels of the teams to the technical competition. And their commitment levels are a function of the relevance of the technical competition to their Constructors' Championship ambition. Consequently, a high-stake technical competition is required to guarantee an aggressive competition among the teams to realise the critical technical objectives of the sport.

Moreover, it is beneficial that the progress of the technical competition be concealed from the teams and fans until the close of the season. One of such benefits is for the spectacle of the sport. Throughout the season, the focus should be on racing; as there is so much to keep the fans excited in the racing competition among the racing players and the technical players. The racing players race among themselves while the technical players strive to provide their racing teammates with the fastest cars. This period of hot racing competition among the racing players and the technical players; is not a suitable time to progressively update fans on the technical competition among the technical players. Since there is already so much spectacle to keep the fans absorbed in the racing, the outcome of the technical competition should be saved to the last; when every racing point for the Constructors' Championship have been clinched and the tension and eagerness to know the eventual winner of the Constructors' Championship is at its peak.

Furthermore, we want to avoid unduly influencing the technical players from making desperate, last-minute updates and changes to their strategies for realising the sport's objectives for the season; as a result of awareness of their technical positions. Such will not be an efficient approach, but a maximisation approach. What is ideal, is for a team to strategise for a succeeding season on how they will incorporate the sport's technical objectives in the development of their cars and in the introduction of technological innovations to Formula One.

Moreover, when you are in a tough competition in which you do not know your relative performance during the course of the competition, it puts you at your best. You will tend to be at your peak performance since you so much want to win but do not know if your rivals will do better than you. Examples are time trial, special stage and qualifying. Every racer will tend to be at his very best, because, he can only know if he has won; after every competitor has completed his lap. Although, awareness of one's relative performance can motivate an athlete, what we desire for the teams is inner inspiration to be the best versions of themselves in efficiently managing the resources at their disposal to pursue their aspirations for the Constructors' Championship; as oppose to desperate, last-minute attempts to earn more technical points which may be counterproductive to the purpose of the technical competition. Efficient solutions to safety, reliability, competitiveness, sustainability and such; are best realised by careful planning and strategy; not desperate, last-minute measures.

Yet, the technical competition is not a one-off competition, but will continue throughout the season in the various related activities of the teams, such as performance updates. The concerned authorities will consistently collate relevant data throughout the season from the teams. However, their results will be concealed until the close of the season. Now, table 3[c] illustrates a complete technical points result for a season with 10 teams and 8 Constructors' Grands Prix:

Table 3[c]:

TEAM	*TECHNICAL POSITION*	*TECHNICAL POINTS*
A	1ST	592
B	2ND	528
C	3RD	464
D	4TH	400
E	5TH	336
F	6TH	272
G	7TH	208
H	8TH	144
I	9TH	80
J	10TH	16
		3040

At the close of each season, each team is entitled to the number of technical points that are staked on the technical position that it attains. For instance, the team that takes the 3rd technical position in a season of 10 teams and 8 Constructors' Grands Prix will earn 464 technical points. The technical points of each team will be added to its racing points to determine its constructor points for the season. The team that secures the highest constructor points, at the end of the season, will be the winner of the Constructors' Championship.

Now, it is critical that the technical points that are staked on the number one technical position; matches the highest attainable number of racing points. This is because, it is critical to completely rule out the possibility of any team considering the strategy of winning the Constructors' Championship by utterly neglecting the objectives of the sport and instead; channel all the resources at its disposal to develop the fastest car possible; without regards to safety, reliability, competitiveness, sustainability and the like. Should any team attempt this strategy and resultantly, wins the racing competition but comes last in the technical competition; then, the mirror-image relationship between the racing points system and the technical points system would imply that such a team limits itself, substantially, by automatically forfeiting equal or more, but not less, constructor points to the winner of the technical competition.

Moreover, since the winner of the technical competition is automatically guaranteed equal or more, but not less, constructor points than the winner of the racing competition; the teams will spontaneously place more importance on realising the technical objectives of the sport over developing the speed-related performances of their cars. This does not mean that developing the speed-related performances of their cars will no longer be important to them. Nor does it mean that races will be boring. Rather, it means that the critical objectives of the sport will take precedence over speed-related performances; in the development of their cars. This is completely healthy and desirable. And the icing on the cake is that the spectacle of the races will not be adversely affected in any way. Because, the relationship that exists between the racing and technical points systems ensures that the eventual winner of the Constructors' Championship wins on the merit of supreme commitment to both the technical competition and the racing competition.

Someone may find technical points absurd in a sport competition. If driving a car in a competitive situation can be regarded as a sport, and rightfully so; then I see no reason why the complementary technical competition, which is an integral part of the Constructors' Championship, should not be taken into account; in the Constructors' Championship results, particularly when; not taking account of it has been detrimental to the sport. Since its inception, motor sport has been a spectacular two-fold competition consisting of the driving competition and the technical competition. Yet only the driving competition and resultantly, the speed-related performances of the technical competition are rewarded with racing points in the Constructors' Championship.

How right is it, to mandate teams to construct their cars as part of a sport competition; and then, effectively end up scoring only the speed-related performances of these cars? Teams will obviously concentrate on developing only the speed-related performances of their cars; since it is the only technical consideration that is relevant to winning the competition; to the detriment of such critical technical considerations as; safety, reliability, competitiveness and environmental sustainability. Mandating the teams to construct their cars for a sport competition, automatically makes the construction of these cars a fundamental part of the competition. As a matter of fact, the name of the competition is the “Constructors’ Championship”. If constructing the cars is part of this competition; then the safety performances, reliability performances, competitiveness performances, sustainability performances and the performances of every relevant technical consideration must reflect in the results of the competition. Otherwise, there is no point for the teams to construct their cars. It would then be better to buy standardised racing cars off the shelf for the competition.

And concerning the subject of standardised racing cars, there is essentially no difference between buying standardised cars from a supplier and been mandated to construct cars with a set of technical specifications. They practically amount to the same thing. Notwithstanding, a notable difference between the two is that; buying standardised cars; with identical technical specifications; from a single supplier can guarantee a sustained realisation of the sport’s technical objectives; whereas, mandating teams to construct their cars with a set of technical specifications, can never guarantee a sustained realisation of the sport’s technical objectives; except the technical specifications are 100% prescriptive, with no room for technical ingenuity from the teams.

This explains why Formula One has been evolving, as a necessary evil, from its technologically innovative roots and progressively embracing a standardisation approach in the development of its cars; with more and more prescriptive technical specifications; and less and less room for revolutionary technological innovations that emanate from the individual initiatives of the teams; as it was in the sixties, seventies and eighties. By the way, the type of innovations we see nowadays in Formula One are the collective type that is normally promoted by the concerned authorities and prescribed by technical specifications. Resultantly, such approach to innovation is a form of standardisation; which usually ends up favouring one or more teams over the others; since every team has its individual technical preferences, specialities and approach to solving technical problems.

Moreover, such standardised approach to innovation creates an homogeneous grid of cars that look almost the same and have essentially the same technical specifications; with limited individuality. Yet, in spite of their homogeneity, these cars end up having significantly different speed-related performances. By way of comparison, imagine how rich and varied the outcome would have been; if an environmental sustainability direction was effectively set in Formula One; but teams were given the liberty to develop their own environmentally sustainable technologies; and then, the environmental sustainability performances of their cars were evaluated.

Assessing the outcome of the teams' technical activities is a vastly superior approach for realising the sports technical objectives; to prescribing technical specifications to the teams. As far as technological innovation is concerned, the means does not justify the end. Rather, it is the end that justifies the means. That is to say, technologies and specifications do not justify resultant performances. Rather, resultant performances justify technologies and specifications. Because, technologies and specifications are only as important as the performances that can be extracted from them. A new technology or specification with a superior performance is sure to render obsolete an existing technology or specification. This means that, complete technical liberty is critically required for Formula One to realise its full potential; with respect to technological innovation.

Therefore, it is considerably more beneficial and effective to assess the technical performances of the teams; than prescribing technical specifications for them; to realise the sport's technical objectives. The employment of technical specifications to regulate the technical activities of the teams; handicap the teams from researching and developing the optimal combination of technologies and specifications; that would have yielded the optimal performances in the various technical considerations of the cars. For as long as technical specifications are employed to regulate the technical activities of the teams; the sport will never realise its full technological potential.

Consequently, since the end justifies the means; the best approach to realising the sport's technical objectives and the full technological potential of the sport; is to accord complete liberty to the teams to adopt any "means" in developing their cars. And then, the performances of their cars; with respect to the realisation of sport's technical objectives; will certainly "justify", or "condemn", their means. In other words, it is substantially detrimental to prescribe the means; but immensely beneficial to rather assess the technical performances of the cars; with respect to the sustained realisation of the sport's technical objectives. With this approach, Formula One will certainly realise its full technological potential; and resultantly, revolutionary technological innovations will flourish.

The prescription of technical specifications heavily limits what would have become a rich variety of revolutionary technological innovations. Technical specifications are presently more prescriptive than they were in the past; all in a bid to realise the objectives of the sport. Yet, for as long as the technical specifications leave some room for technical ingenuity; it can never guarantee a sustained realisation of the sport's technical objectives. Moreover, teams will perpetually seek for loopholes to exploit in every technical specification. On the other hand, if there is no room for creativity and ingenuity in the technical specifications; and the concerned authorities manage to formulate a set of technical specifications without a single loophole; and every team resultantly end up constructing identical cars; then, there would be no point for teams to go through the burden of developing their cars.

Even at present, how happy and satisfied are the teams with the situation of: mandating them to develop their cars in what is suitably a Constructors' Championship; only to considerably limit the extent to which they can apply their rich and varied technical expertise and ingenuity in developing their cars? And what is then, the point of mandating teams to construct their cars instead of buying them?

Therefore, in order to guarantee the sustained realisation of the sport's technical objectives, we should either: mandate the teams to buy standardised racing cars from a single supplier and resultantly sacrifice the technological characteristic of Formula One; or we discontinue the use of technical specifications, accord the teams complete technical liberty and make a fully-fledged sport competition of the teams' technical activities of developing their cars. Because, mandating teams to develop their cars with a set of technical specifications; can only act as a palliative for realising the sport's technical objectives; with harmful side effect on the realisation of the sport's technological potential.

Besides, the idea of directing the technical activities of the teams; to realise the critical technical objectives of the sport; by offering reward, in the form of technical points, is completely natural. In many situations, nature gets elemental stuff done by offering reward; without which such basic objectives of life, would be liable to neglect. An example is procreation. In addition, the name "Constructors' Championship" speaks for itself; as we are not trying to determine the best pair of Formula One drivers in this championship, but the best Formula One racing team. Hence the need to not only award racing points to racing players; but also award technical points to technical players in the Constructors' Championship.

Having developed the technical points system, we shall now develop the technique to determine the technical position of every team; by comparing their performances in the considerations that constitute the sport's technical objectives. As earlier mentioned, relevant data will be collated from the teams, throughout the season. These data will be assessed to determine the performances of the teams in the various considerations.

Now, there are so many considerations that constitute the technical objectives of the sport. The safety objective alone is comprised of several critical considerations. However, for the purpose of illustration, we shall assume that safety, reliability and competitiveness are the only considerations that constitute all the technical objectives of the sport. We shall also assume that an increasing performance, of the teams, in the safety and competitiveness considerations is indicated by increasing measures; while an increasing performance in the reliability consideration is indicated by decreasing measures. Furthermore, we shall assume that the units for each of the considerations are different. Table 3[d] presents the data collated from 10 teams in a hypothetical Formula One season.

Table 3[d]:

TEAMS	*SAFETY*	*RELIABILITY*	*COMPETITIVENESS*
A	8,300 UNITS	4 UNITS	185 UNITS
B	8,000 UNITS	11 UNITS	170 UNITS
C	7,700 UNITS	18 UNITS	155 UNITS
D	7,400 UNITS	25 UNITS	140 UNITS
E	7,100 UNITS	32 UNITS	125 UNITS
F	6,800 UNITS	39 UNITS	110 UNITS
G	6,500 UNITS	46 UNITS	95 UNITS
H	6,200 UNITS	53 UNITS	80 UNITS
I	5,900 UNITS	60 UNITS	65 UNITS
J	5,600 UNITS	67 UNITS	50 UNITS

From the table, each team outperforms the succeeding team with equal performance difference in each of the considerations. Now, what we desire, is for every Formula One team to assiduously pursue every technical objective of the sport. In assessing the teams' performances in this technical competition, we want to ensure that teams do not adopt a negligent strategy to winning. That is to say, we want to ensure that they do not neglect some considerations; thereby defeating the purposes for such considerations; and still manage to win. To ensure that teams do not win by negligence, we will adopt a "strong as your weakest link" approach to assessing their performances. This means that we shall compare the performances of every team, relative to the other teams; in every consideration; to ascertain their lowest relative performances; in order to determine their technical positions in the technical competition.

It is instructive to mention that; it is not absolute performance, but relative performance that determines position in a competition. In other words, it is not the absolute performance of a competitor that determines its position in a competition. Rather, it is the performance of a competitor, relative to the competition, that determines its position in a competition. Moreover, regardless of how close or otherwise a competition may be; first is first, second is second, third is third…and last is last. In addition, regardless of how varied several competitions, involving the same competitors, may be; the relative performances of every competitor in these competitions can be compared by applying the concept of proportion. Consequently, the relative performances of each team in every consideration will be compared, to determine its lowest relative performance. And the lowest relative performance of every team; relative to the lowest relative performances of the competition; will determine its technical position. For the sake of simplicity, we shall be referring to the “lowest relative performance” as the “lowest performance”.

From table 3^d we can observe that, team A clinched the highest performances in all three considerations. And as we shall subsequently realise, its relative performances in all the considerations are equivalent. And the same holds true for the other 9 teams; as each has equivalent relative performances in all the considerations. Also, team B secures the 2^{nd} highest performances in all three considerations. In addition, team C repeats this pattern by claiming the 3^{rd} highest performances in all three considerations. This pattern continues and ends with team J. Table 3^e presents the technical positions of the teams.

Table 3^e:

TEAM	*SAFETY*	*RELIABILITY*	*COMPETITIVENESS*	*TECHNICAL POSITION*
A	8,300 UNITS	4 UNITS	185 UNITS	*1^{st}*
B	8,000 UNITS	11 UNITS	170 UNITS	*2^{nd}*
C	7,700 UNITS	18 UNITS	155 UNITS	*3^{rd}*
D	7,400 UNITS	25 UNITS	140 UNITS	*4^{th}*
E	7,100 UNITS	32 UNITS	125 UNITS	*5^{th}*
F	6,800 UNITS	39 UNITS	110 UNITS	*6^{th}*
G	6,500 UNITS	46 UNITS	95 UNITS	*7^{th}*
H	6,200 UNITS	53 UNITS	80 UNITS	*8^{th}*
I	5,900 UNITS	60 UNITS	65 UNITS	*9^{th}*
J	5,600 UNITS	67 UNITS	50 UNITS	*10^{th}*

The reason why we could easily ascertain the technical positions of the teams is because of the obvious and orderly performance difference between them. Otherwise, our assessment would have been close to impossible. Fortunately, we can employ a system of scales to compare the relative performances of each team in all the considerations. The scale of each consideration is calibrated using the performance difference between the highest performing team and the least performing team. Consequently, the performances of every team, relative to the competition; in every consideration; can easily be compared to identify the lowest performances of every team in all the considerations.

So, let us adopt a scale of 100 for our hypothetical Formula One season. The highest performing team will be placed on the 100^{th} mark of the scale. While the team with the least performance is placed at the zero mark of the scale. That is to say, the relative performance of the highest performing team, will have a "scale value" of 100 and the relative performance of the least performing team will have a scale value of zero. The scale value is the value of a team's relative performance on a given scale. Table 3^f presents the result.

Table 3^f:

TEAM	*SAFETY*	*RELIABILITY*	*COMPETITIVENESS*	*TECHNICAL POSITION*
A	100.0000	100.0000	100.0000	*1^{st}*
B	88.8889	88.8889	88.8889	*2^{nd}*
C	77.7778	77.7778	77.7778	*3^{rd}*
D	66.6667	66.6667	66.6667	*4^{th}*
E	55.5556	55.5556	55.5556	*5^{th}*
F	44.4444	44.4444	44.4444	*6^{th}*
G	33.3333	33.3333	33.3333	*7^{th}*
H	22.2222	22.2222	22.2222	*8^{th}*
I	11.1111	11.1111	11.1111	*9^{th}*
J	0.0000	0.0000	0.0000	*10^{th}*

In comparing tables 3^e and 3^f, one can observe that: for each consideration; the performance of every team, relative to the competition; irrespective of the units of measurement; and regardless of how close or otherwise the competition is; is reflected in accurate proportion on each scale. We can observe, as earlier mentioned, that every team has equivalent relative performances in all the considerations. So, the use of scales enables us to easily compare the performances of every team, relative to its rivals; in every consideration of the sport's technical objectives. Table 3^g presents an example of 10 teams with randomised performances. And table 3^h present their relative performances with a scale of 100.

Table 3^g:

TEAM	*SAFETY*	*RELIABILITY*	*COMPETITIVENESS*
A	8,400 UNITS	2.0 UNITS	95 UNITS
B	8,400 UNITS	2.4 UNITS	193 UNITS

C	8,250 UNITS	14.8 UNITS	148 UNITS
D	8,300 UNITS	8.0 UNITS	110 UNITS
E	8,250 UNITS	42.0 UNITS	163 UNITS
F	8,160 UNITS	10.4 UNITS	163 UNITS
G	8,160 UNITS	20.8 UNITS	167 UNITS
H	7,400 UNITS	14.8 UNITS	195 UNITS
I	8,340 UNITS	20.8 UNITS	163 UNITS
J	7,770 UNITS	17.2 UNITS	180 UNITS

Table 3[h]*:*

TEAM	*SAF*	*REL*	*COM*	*LP*	*1^{ST} BATCH*		*2^{ND} BATCH*		*TP*
					L2	L3	L2	L3	
A	100	100	0	0			100		*8^{TH}*
B	100	99	98	98					*1^{ST}*
C	85	68	53	53	68	85			*5^{TH}*
D	90	85	15	15					*7^{TH}*
E	85	0	68	0			68	85	*10^{TH}*
F	76	79	68	68					*2^{ND}*
G	76	53	72	53	72				*3^{RD}*
H	0	68	100	0			68	100	*9^{TH}*
I	94	53	68	53	68	94			*4^{TH}*
J	37	62	85	37					*6^{TH}*

Key:

SAF- SAFETY
REL- RELIABILITY
COM- COMPETITIVENESS
LP- LOWEST PERFORMANCE
1^{ST} BATCH- 1^{ST} BATCH OF TIES
2^{ND} BATCH- 2^{ND} BATCH OF TIES
L2- 2^{ND} LOWEST PERFORMANCE
L3- 3^{RD} LOWEST PERFORMANCE
TP- TECHNICAL POSITION

Now, we know that safety is the most important objective of motor sport. Consequently, it does not feel right making an equal priority comparison of the safety consideration with the other considerations. Even, within the safety objective of the sport; a hierarchy is likely to exist among its considerations. Therefore, it is likely that varying priorities will exist among the considerations of the sport’s objectives; although, some considerations may share equal priorities. How can we then direct the teams to prioritise the considerations of the sport's objectives according to their varying levels of importance?

The technique is to employ varying scales for considerations with varying priorities. The more important the consideration, the smaller the scale assigned to it. That is, higher priority scales are in fact smaller scales. This might seem counter-intuitive. But since their lowest performances determine their technical positions; racing teams will tend to make a priority of attaining higher performances in the smaller scaled considerations. Our technique of prioritising the various considerations of the sport’s objectives and comparing the teams’ technical performances; is somewhat analogous to the system of measuring temperature and the economic concepts of inflation, deflation and foreign exchange.

The safety consideration in the hypothetical and randomised examples that we made; is the most important of the three considerations. Let us assume that the reliability consideration is more important than the competitiveness consideration. Moreover, we shall arbitrarily assign “priority values” of 80, 90 and 100 to the scales of safety, reliability and competitiveness respectively. Please, note that, a higher priority scale has a lower priority value; and a lower priority scale has a higher priority value. Tables 3^i and 3^j presents the relative performances of the 10 teams in the hypothetical and randomised situations that we have been treating; but with the respective scales for each consideration.

Table 3^i:

TEAM	*SAF*	*REL*	*COM*	*LP*	*TP*
	PV80	PV90	PV100		
A	80.0000	90	100.0000	80.0000	*1^{st}*
B	71.1111	80	88.8889	71.1111	*2^{nd}*
C	62.2222	70	77.7778	62.2222	*3^{rd}*
D	53.3333	60	66.6667	53.3333	*4^{th}*
E	44.4444	50	55.5556	44.4444	*5^{th}*
F	35.5556	40	44.4444	35.5556	*6^{th}*
G	26.6667	30	33.3333	26.6667	*7^{th}*
H	17.7778	20	22.2222	17.7778	*8^{th}*
I	8.8887	10	11.1111	8.8887	*9^{th}*
J	0.0000	0	0.0000	0.0000	*10^{th}*

Table 3^j:

TEAM	*SAF*	*REL*	*COM*	*LP*	*B1*	*B2*	*TP*
	PV80	PV90	PV100		L2	L2	
A	80.0	90.0	0	0.0		80.0	*8^{TH}*
B	80.0	89.1	98	80.0			*1^{ST}*
C	68.0	61.2	53	53			*3^{RD}*
D	72.0	76.5	15	15			*7^{TH}*
E	68.0	0.0	68	0.0		68.0	*9^{TH}*
F	60.8	71.1	68	60.8			*2^{ND}*
G	60.8	47.7	72	47.7	60.8		*5^{TH}*
H	0.0	61.2	100	0.0		61.2	*10^{TH}*
I	75.2	47.7	68	47.7	68.0		*4^{TH}*
J	29.6	55.8	85	29.6			*6^{TH}*

Key:

SAF- SAFETY
REL- RELIABILITY
COM- COMPETITIVENESS
LP- LOWEST PERFORMANCE
B1- 1^{ST} BATCH OF TIES
B2- 2^{ND} BATCH OF TIES

PV80- PRIORITY VALUE OF 80
PV90- PRIORITY VALUE OF 90
PV100- PRIORITY VALUE OF 100
L2- 2^{ND} LOWEST PERFORMANCE
TP- TECHNICAL POSITION

Recall from table 3^{f} that every team in our hypothetical example have equivalent relative performances in all three considerations. Yet, by adopting our priority technique, we can observe from table 3^{i} that the safety consideration is now the most decisive consideration; among our three considerations; in determining the technical positions of the teams. The second most decisive consideration is the reliability consideration. And the least decisive is the competitiveness consideration. This implies that; a higher priority scale will create a tendency for teams to compete more aggressively in a higher priority consideration.

Moreover, a careful observation of tables 3^{i} and 3^{j} reveals that; the lowest performance of a team can only come from the highest priority scale; if its relative performances in all the lower priority scales; have scale values that are greater than the priority value of the highest priority scale. This means that a "safe range" exist in every priority scale that is lower in priority to the highest priority scale; such that relative performances within this range, cannot determine a team's lowest performance. The safe range is bounded by the priority value of the highest priority scale and the priority value of the given scale. From tables 3^{i} and 3^{j}, the safe range for the reliability scale, are the scale values from 80 to 90 on its scale. And the safe range for the competitiveness scale, are the scale values from 80 to 100 on its scale.

The random example of table 3^{j} is rather involved. So, we shall take a third example to further analyse our priority technique. It is a modification of the hypothetical case presented in table 3^{d}. Table 3^{k} presents our third example.

Table 3^{k}:

TEAMS	*SAFETY*	*RELIABILITY*	*COMPETITIVENESS*
A	8,300 UNITS	10.3 UNITS	158 UNITS
B	8,030 UNITS	4.0 UNITS	158 UNITS
C	7,760 UNITS	10.3 UNITS	185 UNITS
D	7,400 UNITS	25.0 UNITS	140 UNITS
E	7,100 UNITS	32.0 UNITS	125 UNITS
F	6,800 UNITS	39.0 UNITS	110 UNITS
G	6,500 UNITS	46.0 UNITS	95 UNITS
H	6,200 UNITS	53.0 UNITS	80 UNITS
I	5,900 UNITS	60.0 UNITS	65 UNITS
J	5,600 UNITS	67.0 UNITS	50 UNITS

From table 3[k], we observe that team A was not able to maintain his lead in all three considerations; as he has conceded two of his leads to team B and team C. In addition, these three teams are so committed to realising the sport's objectives, that they take the top three spots in all three considerations. However, team A was the best performing team in the safety consideration. Team B was the top performer in the reliability consideration. And team C took the lead in the competitiveness consideration. Table 3[l] presents the relative performances of the teams with a scale of 100.

Table 3[l]:

TEAM	*SAF*	*REL*	*COM*	*LP*	*L2*	*L3*	*TP*
A	100.0	90.0	80.0	80.0	90.0	100.0	*TIE*
B	90.0	100	80.0	80.0	90.0	100.0	*TIE*
C	80.0	90.0	100.0	80.0	90.0	100.0	*TIE*
D	66.7	66.7	66.7	66.7			*4th*
E	55.6	55.6	55.6	55.6			*5th*
F	44.4	44.4	44.4	44.4			*6th*
G	33.3	33.3	33.3	33.3			*7th*
H	22.2	22.2	22.2	22.2			*8th*
I	11.1	11.1	11.1	11.1			*9th*
J	0.0	0.0	0.0	0.0			*10th*

Key:

SAF- SAFETY
REL- RELIABILITY
COM- COMPETITIVENESS
LP- LOWEST PERFORMANCE
L2- 2ND LOWEST PERFORMANCE
L3- 3RD LOWEST PERFORMANCE
TP- TECHNICAL POSITION

From table 3[l], we see that the lowest, second lowest and third lowest performances of teams A, B and C; in the three considerations, are equivalent. Their relative performances are so perfectly equivalent that our method of breaking the tie; by comparing their second and third lowest performances; could not break the tie between them. Although, it can be a necessity to break the tie in a sport competition, each of these teams have done so well, that each is deserving of the top spot in the technical competition.

Nonetheless, in the above assessment of the sterling performances of these teams; every consideration was considered with equal priority. This implies, that a team can casually choose any consideration and place the most commitment to its realisation; for any reason best known to it. But, what is desirable is to direct the teams to place varying priorities in the pursuit of the sport's technical objectives according to the varying importance of their considerations. This can be attained with our priority technique. Table 3[m] present the result of applying our technique.

Table 3ᵐ:

TEAM	SAF	REL	COM	LP	TP
	PV80	PV90	PV100		
A	80.0000	81	80.0000	80.0000	1st
B	72.0000	90	80.0000	72.0000	2nd
C	64.0000	81	100.0000	64.0000	3rd
D	53.3333	60	66.6667	53.3333	4th
E	44.4444	50	55.5556	44.4444	5th
F	35.5556	40	44.4444	35.5556	6th
G	26.6667	30	33.3333	26.6667	7th
H	17.7778	20	22.2222	17.7778	8th
I	8.8887	10	11.1111	8.8887	9th
J	0.0000	0	0.0000	0.0000	10th

Key:

SAF- SAFETY
REL- RELIABILITY
COM- COMPETITIVENESS
PV80- PRIORITY VALUE OF 80
PV90- PRIORITY VALUE OF 90
PV100- PRIORITY VALUE OF 100
LP- LOWEST PERFORMANCE
TP- TECHNICAL POSITION

From table 3ᵐ, we can observe that team A is well rewarded with the first technical position for having the best performance in the safety consideration; even though its relative performances are perfectly equivalent to those of teams B and C. Yet, team A had to be careful in prioritising its levels of performances in the other considerations; such that its relative performances in the lower priority considerations are within the safe range for each corresponding scale. For instance, if its relative performance in the reliability consideration was reduced to equal its relative performance in the competitiveness consideration; it would have had a scale value of 72, instead of 81, on the reliability scale. Resultantly, its lowest performance would have been 72 instead of 80. It therefore means that teams cannot afford to perform sloppily in any of the considerations; but have the best chance of winning the technical competition by prioritising their commitments to the considerations according to their varying levels of importance.

Furthermore, if the concerned authorities conceal the data collated from the teams until the close of the season. The teams will not be able to ascertain their relative performances in the various considerations, during the competition. As a result, they will be less dependent on clever strategies to winning the technical competition. Instead, they will fire on all cylinders to pursue the sport's technical objectives in order to attain the best performances in every consideration; from the most important consideration to the least, but also, important consideration.

Now, apart from been able to prioritise the considerations, we can also classify the considerations. The combined ability to prioritise and classify, enables us to fine-tune the aggressiveness of the competition for each individual consideration. We have three classes of considerations. They are the: first class, second class and third class considerations. Resultantly, we have three corresponding classes of scales. They are the: first class, second class and third class scales.

The first class considerations are the most critical class of considerations; which require flat-out competition among the teams. A first class scale is calibrated using the performance difference between the highest performing team and the least performing team. Consequently, the relative performance of the highest performing team, will have a scale value that is equal to the priority value of the scale. And the relative performance of the least performing team will have a scale value of zero. By implication, the highest scale value of a first class scale is determined by its priority value; since the highest performing team has a scale value that is equal to the priority value of the scale. While its lowest scale value is zero; since the least performing team is placed at the zero mark of the scale.

First class scales were employed for the safety, reliability and competitiveness considerations; in the examples that we treated earlier. Although, priorities may vary; yet, the competition in every first class consideration is expected to be aggressive. Because the least performing team in such a consideration is placed at the zero mark of the scale; regardless of how close or otherwise, the competition may be among the teams for such a consideration. Recall that every team's technical performance is as strong as its weakest link. So, having zero in any consideration will be a huge blow to the ambition of clinching the number one technical position. Resultantly, every team will fire on all cylinders, in the first class considerations; in order to attain the highest performances.

However, as it is with nuclear chain reaction, there may be need to control the aggressiveness of the competition for some considerations. Our control rods are the second class scales. A second class scale is calibrated using the difference between the performance value of the highest performing team and a predefined performance value. This means that a close competition or otherwise, in a second class consideration, will reflect on the scale. So, the relative performance of the highest performing team, will have a scale value that is equal to the priority value of the scale. While, the predefined performance value will have a scale value of zero. As a result, the highest scale value of a second class scale is determined by its priority value; since the scale value of the highest performing team is placed at the priority value of the scale. But its lowest scale value cannot be predicted. Because, the relative performances of the less performing teams can drop below the predefined performance value; if their relative performances are substantially poor. Consequently, the scale values of these teams can be less than the zero mark of the scale.

However, it is possible for the scale value of the least performing team to be greater than the zero mark on a second class scale. In addition, a second class scale, by design, has a lower priority to the highest priority scale. So that, there can be a safe range on its scale. By implication, the lowest performance of a team cannot come from a second class scale; if its scale value is greater than the priority value of the highest priority scale; even if it is the least performing team in the corresponding consideration. This is what gives the teams some sigh of relief; and makes the competition, in this class, less aggressive than the first class considerations.

So, when we want to maintain a full-throttle competition in any consideration; we adopt a first class scale. But if we desire to control the aggressiveness of the competition in a consideration, we apply the second class scales. For instance, assuming we realise that; an aggressive competition for an environmental sustainability consideration, will be harmful in some respect. But that a controlled competition is suitable. We can then adopt a second class scale for such consideration.

Furthermore, there may be some considerations where, what we desire is that the performances of the teams do not drop below a given performance level. The third class scales are employed for such considerations. A third class scale is calibrated using the difference between two predefined performance values. Resultantly, the scale value of every team, on a third class scale, is dependent on the magnitudes of the predefined performance values. Also, the highest and lowest scale values for a third class scale; cannot be predicted. Because, the scale values of the higher performing teams may exceed the priority value of the scale; while the scale values of the less performing teams may drop below the zero mark of the scale.

However, just like a second class scale, a third class scale is designed to be of lower priority to the highest priority scale. This is because, a third class scale is designed, such that; the performance level that is our minimum acceptable for the teams; has a value on the scale that is equal to the priority value of the highest priority scale. For example, we know that in an ultra-competitive environment as Formula One; every speed-related consideration must be well attended to; before the technical players in each of the teams can even consider aesthetic, if ever. Yet, we want the looks of Formula One cars to not only be functional, but to also be aesthetic and inspiring. If there is an objective method of measuring or evaluating the aesthetic performance of each team’s car; then, it can become a consideration of the technical competition.

However, one cannot compare the importance of aesthetic with safety, reliability, competiveness, environmental sustainability and the like. Yet, we do not want any of the teams to neglect such considerations as aesthetic. Assuming, we decide that we do not want the aesthetic performance of any team's car to fall below 70% of what we consider as aesthetic; We will adopt a scale for the aesthetic consideration such that 70% on our aesthetic measurement or evaluation system; is equal to a value on the aesthetic scale that is, in turn, equal to the priority value of the highest priority scale.

From the previous examples, safety has the highest priority, with a priority value of 80. Since we desire every team to maintain an aesthetic standard of 70% and above, we will find a scale whose 70% is equal to 80. A little interaction with some algebraic expression reveals the scale to be 114.2857…Let us assume the scale to be exactly 115. Thus, an aesthetic consideration, whose scale has a priority value of 115; can be included in the technical competition. A relative performance of 80 and above, on the aesthetic scale, will not get any team in trouble. Because, a scale value of 80 and above is the safe range for our aesthetic scale. But performing below 70% of our aesthetic measurement or evaluation system; or below 80 on the aesthetic scale; could be detrimental to a team's ambition to secure the top technical position.

Let us address the situation of a tie in the various competitions and championships. The tiebreaks for the technical competition are the second lowest performances, third lowest performances, fourth lowest performances, and so on, to the least lowest performances of the teams. The least lowest performance of a team is in fact, the highest performance of the team. If a tie still occurs at this stage, then; the positions of the teams in each consideration; from the highest priority consideration to the least; will act as tiebreaks. For example, the tie situation that occurred in the hypothetical situation, presented in table 3', may turn out to be a rarity in reality. However, since we still had a tie after comparing all the performances of teams A, B and C; from their second lowest performances to their highest performances; the next tiebreak will be the positions of the teams in the safety consideration.

Furthermore, if drivers attain equal number of points at the end of a Drivers' Grand Prix; then, the fastest laps, second fastest laps, third fastest laps and such; of the drivers who are tied, will act as tiebreaks. It will be extremely rare for drivers to also have ties in their fastest laps, second fastest laps, third fastest laps and so on. But should such occur, then their next fastest laps, will be the tiebreak. Moreover, if racing teams attain equal number of racing points at the end of a Constructors' Grand Prix; then, the fastest laps, second fastest laps, third fastest laps and such; of the drivers in the teams that tied; will act as tiebreaks. For example, if 4 teams tie for the first position; then, the team of the driver that has the fastest lap among the 8 drivers of the 4 teams; will have the first position; regardless of the fastest lap of its other driver. Also, the team of the driver that has the fastest lap among the 6 drivers of the remaining 3 teams; will receive the second position for the Grand Prix; irrespective of the fastest lap of its other driver. This process will be repeated until every tie is broken. By the way, each of these drivers and teams who tied with themselves in the respective Grands Prix; will carry their points into the respective championships. For the Constructors' Championship, the tiebreak will be the technical positions of the teams. However, the tiebreak for the Drivers Championship will remain the same; that is, the Grand Prix positions of the drivers in the Drivers' Grands Prix for the season.

The desirable effects of having a fully-fledged technical competition with technical positions and points is far reaching. Presently, we are skeptical about the possibility of teams spotting loopholes in the 2022 regulations; and disappointing our expectations for 2022 and beyond. But what if, instead of coming in the form of technical specifications; the sport's technical objectives come in the form of a competition that counts towards winning a prize? For instance, imagine that the concerned authorities decide to adopt our technical competition approach; and wake performance is a consideration of the competitiveness objective. Rather than care less about their wake performances or seek for loopholes to exploit which may adversely affect their wake performances; Formula One teams will actually compete among themselves to have the best wake performance. And our fears that the teams may end up significantly reducing the desirable wake performance that we are anticipating for the 2022 cars will be allayed. If the concerned authorities were able to develop a model with an impressive wake performance over current Formula One cars; then, imagine the wake performance values that will result from a competition that counts towards winning the Constructors' Championship.

Yes, it is likely that the looks of Formula One cars may change by virtue of the "so-called" technical liberty. But change is a highly respected Formula One trait. And we should be careful not to allow the wish to preserve certain traditions get in the way of our number one heritage, which is technological innovation. Nonetheless, there is no cause for concern. Rather, we should delightfully anticipate the next generation of Formula One cars. Because, if the concerned authorities adopt our concepts; Formula One cars will spontaneously end up becoming both the most functional and the most stunning cars in the entire world! What is more, our concepts are sure to foster an unprecedented level of individuality in the design of Formula One cars; so much so, that the uninitiated can effortlessly spot the rich and varied characters in the cars of different teams. According the teams complete technical liberty and making a fully-fledged sport competition of the sport's technical objectives is the way to go.

Now, speed is what we enjoy in a motorised sport. It is exhilarating! However, speed can be dangerous. And from the work-energy theorem, the severity of the danger is a quadratic function of the attainable speeds of the cars. In addition, the g-forces acting on drivers will increase as the various accelerations of the cars increase. Consequently, it is critical that racing teams be motivated to make their cars as safe as their speed-related performances, if not safer. In other words, as racing teams strive to increase the various speed-related performances of their cars, they will also be responsible for the development of safety technologies that will make the cars as safe as their attainable speed-related performances, if not safer; for every racing circuit configuration in the season's calendar. The realisation of this desirable situation necessitates three minimum requirements:

- The technical points system must be so designed that the teams will spontaneously give precedence to realising the technical objectives of the sport; over developing the speed-related performances of their cars.
- The choices of every scale must be carefully made in such a way that every team is motivated to place the supreme priority on attaining the top spots of the safety considerations. But, without having to neglect other sets of considerations, such as the reliability, competitiveness and sustainability sets.
- The safety assessment of the racing cars must be so cleverly crafted into relevant considerations, such that; racing teams will have no choice than to provide effective solutions to the safety objective of the sport. For instance, a group of considerations can be constituted to assess the maximum speeds that a driver can survive impacts in certain situations. However, such an assessment can be ineffective if we do not take account of the speed-related performances of the cars, such as the top speed. Because, a team may be the best performer in one or more of this group of considerations, but the differences between the speeds that the driver can survive impacts and the attainable speed-related performances of its car, may be so much, that; its safety accomplishments in these considerations is virtually ineffective. On the other hand, taking account of: the speed-related performances of the cars; the quadratic relationship that speed of impact has with resultant force of impact; and the like; in the assessment of this group of considerations, can make the teams to aggressively compete among themselves to increase the speeds at which drivers can survive such impacts with respect to the speed-related performances of their cars. And this increasing speeds of survival will continue to approach the attainable speed-related performances of the cars, if not surpass it; as long as the teams continue to compete among themselves, season after season. Another example of a group of considerations that

can be carefully and cleverly crafted is g-force; with the goal to make the teams compete among themselves to develop technologies that will make the g-forces on the drivers continue to reduce, season after season, even though the accelerations of the cars may be increasing. Such a goal may look impossible and ridiculous. But the safety and health of our beloved racing drivers are at stake. Because, humans have limits of tolerance to the magnitude and duration of g-forces that acts on them. Crafting a group of clever considerations on the g-forces acting on drivers; will motivate the teams to quest for technologies and techniques that can reduce the g-forces acting on drivers; as they strive to increase the speed-related performances of their cars.

I, personally, desire to see teams fighting among themselves to develop cars that are actually safer than their speed. In actual fact, the battle among the teams, to win the technical competition, can be a spontaneous speed limiter; as racing teams can even suspend developing the speed-related performances of their cars in order to retain or attain the top spot of the technical positions and immerse themselves in the quest for superior safety solutions that would enable them to, then, resume developing the speed-related performances of their cars; in a bid to have the safest and yet fastest cars. Other teams may strategise to reduce speed slightly with the intent of climbing to a higher technical position; in their attempt to win the Constructors' Championship. Still, some teams may manage to efficiently and simultaneously pursue the development of the safety and speed-related performances of their cars.

I want to assume that if our solution had been employed to assess and direct the battle among the teams for technical supremacy; during the ground effect and turbo era; the teams would have been more than willing to accept the challenge of realising the sport's technical objectives, particularly, with the technical points at stake; over outlawing their precious technologies. And the concerned authorities would have had less research and development work to do on safety, competitiveness and other objectives of the sport; other than, to develop a robust assessment system. Consequently, integrating the various technical objectives of the sport into the Constructors' Championship, is a promising idea. Imagine the outcome of Formula One teams perpetually pursuing the sport's objectives; at the same level of commitment and application that they employ in developing the speed-related performances of their cars. I look forward to seeing this happen.

So far, we have been able to establish that the level playing field of the racing competition is the dual-race format. And that, the level playing field of the drivers' competition is the provision of cars with the same speed-related performances for the drivers to compete with. But the constructors' competition consists of a racing competition as well as a technical competition. Resultantly, the cars used in the constructors' races have varying speed-related performances; and rightfully so. Because, the constructors' competition is a relay where the technical players pass the baton to the racing players. The baton is passed back and forth; several times and in several forms, which include; car development, pit stops, strategy calls, performance upgrades and such.

Yet, it is essential for a competition to have a level playing field before it can be regarded as a sport. So what then is the level playing field of the constructors' competition? Did you mention technical specifications? It is intuitive to think that the formula of technical specifications which the teams are mandated to comply with in the development of their racing cars; is the level playing field of the constructors' competition. But we have come to realise, the hard way, from a little history lesson that; more resources can be employed in extracting more performance from a set of technical specifications. And the more the resources employed in the development of a car, the more the performance that can be extracted from the car; even when complying to a set of technical specifications. Consequently, the performance-limitation objective of these technical specifications is frequently defeated, as teams eventually claw back performance.

Moreover, in order to be more competitive in a championship, the big-budget teams expend resources that are several times more than the resources of the small-budget teams. A small-budget team has a budget that is less than $200 million. But a big-budget team has to budget over $400 million, questing for marginal performance advantage that is normally measured in seconds per lap. This is because, so much needs to be expended on a set of technical specifications to obtain so little; in terms of performance difference between teams. But it is this "little" performance advantage, which is so expensive to obtain from a set of technical specifications, that makes the difference between winning or losing the championship. And since the basic goal of every team is to win at all cost, they will sacrifice anything and everything to win.

This is one of the reasons why I am firmly against technical specifications. Because, it compels teams to spend so much for so little, which is grossly wasteful and grossly inefficient. Whereas, according teams the complete liberty for their engineers to think outside the box, will not only result to unlocking enormous performances with less resources, but also result in the advent of revolutionary innovations that by virtue of their efficiency will be relevant to society.

So, the competition among the teams is effectively a "resources competition" where teams compete for the title of "the richest". This is because, it is only the teams with the most resources that can win the Constructors' Championship. By implication, the biggest loophole in the rules and regulations has been the freedom, the teams have, to develop their cars with whatever resources they can afford. Furthermore, we have already established, in this piece; that adopting a technical-specification approach to rule making; leads to other harmful consequences.

If technical specifications are not a level playing field for the constructors' competition; then what is? Cost? Cost is an important consideration of the sustainability objective of the sport. Yet more importantly, it is the foundation of the constructors' competition. To be precise, every resource employed in the development of a racing car by a racing team is elemental to the constructors' competition. That is to say, the constructors' competition is heavily dependent on every single resource employed in the development of the car. Consequently, a Constructors' Championship does not begin with the first Constructors' Grand Prix of the season; rather it begins with every resource that each of the teams will employ in the development of their racing cars for the season. I keep emphasising "every resource" because the equal use of each and every resource in the development of racing cars by racing teams is the level playing field for a constructors' competition.

How can we be sure of this? First and foremost, the technical activities, among the teams, of developing the racing cars is a competition in its own right. So much so, that the outcome of this technical competition considerably impacts the racing competition and the realisation of the sport's objectives, such as; safety, reliability, competitiveness and sustainability. Now, the racing team that employs the greatest resources in developing the racing car that turns out to be the fastest and yet most compliant with the sport's objectives; may not necessarily be the best performing team from a sporting context, because:

- Performance is proportional to the resources employed. This creates the notion that other teams may perform as well or even better; if they have the same resources.
- Performance in a sport competition is measured with the yardstick of equal opportunity for every competitor to win. This is why the rules and regulations of every type of sport mandates every participating team to provide the same number of players to participate in every event, even if these teams may have more players. And as earlier mentioned in this work, it is also the reason why goalposts and the two halves of a field, in field events, have the same dimensions. And athletes at the start of races have equal distances from the finishing line.
- The winner of a proper sport competition; that is, one with the yardstick of a level playing field; wins, not because it had the greatest advantage to do so; but because it is the best in such desirable qualities as talent, skill, fighting spirit, application, ingenuity and efficiency. And these are qualities that we celebrate in a sport competition. Hence the need for a level playing field.

Nonetheless, creating a level playing field for the constructors' competition is not about placing limitations on the resources that can be employed to develop a racing car. Personally, I thoroughly enjoy what the big budget teams are doing with the resources and technologies they can afford. And I am rooting for the continued application of the most advanced technologies in every aspect of the sport.

Yet, there is a dire need to satisfy the essential requirement for a sport, in the competition among the constructors. Resultantly, every team must meet up with such a "sporting requirement" for the constructors' competition; before they can be eligible to participate. Otherwise, the Constructors' Championship cannot be regarded as a sport competition. All these imply that the "formula" should be a formulation of the "resources specifications" that every team is mandated to fulfill before they can participate in the Constructors' Championship; as opposed to been a formulation of technical specifications. And that the periodic rule changes should entail the review and modification of these resources specifications. However, these resources specifications, among other considerations, must be befitting of the status of Formula One as the pinnacle of motor sport; and must flourish the aerospace standards of technological innovations, that is characteristic of Formula One.

Moreover, a level playing field for a team sport requires that every team competes with the same number of players. However, payments of players should be left to the agreements that the teams have with their players; so long as every team satisfies the mandated number of players for the competition. Consequently, the remuneration of not only the racing players but also the technical players; should not be prescribed by the rules and regulations. Rather, teams should be left to strike agreements with all their players. By the way, the technical players of motor sport, such as the pit crew, the strategists, the engineers and the likes; deserve more recognition than they are presently receiving for the key roles they are playing in the sport. The technical players as well as the racing players are indeed teammates in a relay race. And as such, they should be celebrated, equally, as the drivers.

So, as we all know, performance in a sport competition is entirely dependent on the abilities of the players. Competing with identical cars will certainly level the playing field in a Drivers' Grand Prix. Resultantly, the Drivers' Championship will be entirely dependent on the talent and driving skill of the racing players; considering the fact that every car has equal performance in every single technical detail. While, competing with a set of resources specifications will certainly level the playing field in the Constructors' Championship. Consequently, the Constructors' Championship will be entirely dependent on the talent and ingenuity of the technical players, as well as the talent and driving skill of the racing players; considering the facts that: every team uses equal resources to develop their cars; and the Constructors' Championship is a relay competition consisting of technical players and racing players. Therefore, the performance differences between rivals in the Constructors' and Drivers' Championships will be entirely dependent on the varying abilities of the players; just as it is with other sports, such as: football, tennis, cricket, basketball, and athletics.

Moreover, since every team have equal resources to work with, they will no longer expend a substantial portion of their resources questing for marginal performance advantage from a set of technical specifications. Rather, they will exercise their technical liberty in thinking outside the box to not only efficiently realise superior performance on the racing circuit, but also realise the sport's technical objectives.

Furthermore, the various concepts that we have developed for the Constructors' Championship and for the realisation of the sport's objectives; will make the idea of competing in Formula One, an attractive consideration to individuals and organisations within and beyond the motor industry. For instance, the resources specifications will make the cost of winning a Formula One Constructors' Championship more consistent and predictable. This will enable interested parties to readily ascertain if running a competitive Formula One team is sustainable for them. In addition, the variety of technologies entailed in realising the sport's technical objectives; the applicability of these technologies in society; the technical competition to realise these objectives; and the complete technical liberty to adopt technologies and specifications; will effectively make Formula One a research and development haven, as well as a perfect test bed; to a rich variety of technological organisations, within and beyond the motor industry; for the development of diverse society-oriented technologies.

Now, different organisations have their specialities and their individual approach to solving technical problems, that works best for them. This implies that a set of technical specifications usually favours one or more teams and their partners, over the other teams and their partners. In fact, major rule changes are normally accompanied by the rise and fall of different teams with respect to who dominates the championships. Consequently, technical liberty, coupled with an optimal specification of resources; will ensure that, the most efficient combination of technologies, wins the technical competition; which in turn, will count towards winning the Constructors' Championship. What is more, teams and their partners will be able to adopt and develop technologies within their areas of expertise; as opposed to been constrained to adopt and develop a set of mandatory technologies and specifications. Such technical liberty will encourage individuals and organisations within and beyond the motor industry to opt for Formula One, over other options, in developing their society-oriented technologies and winning races and championships with them.

The purpose of every sport is to benefit society. An obvious benefit is entertainment. Yet, every sport has its unique characteristics that can be beneficial to society. Martial art is entertaining. But can be useful for self-defense. Football is entertaining. But can be an excellent form of exercise and recreation. Apart from the racing spectacle, which we all enjoy; motor sport can be immensely beneficial to society by been at the vanguard of developing revolutionary technologies that are relevant to resolving the technological challenges confronting our society. Such functional benefits can make motor sport the most relevant sport in the world. This may sound far-fetched, but society has already been benefiting from motor sport.

For instance, Renault made a seemingly unrealistic choice, in the seventies, to develop the turbo. And they suffered difficulties along the way. But today, they have been vindicated by: the amazing success of their project; the races they won; and the popular application of the turbo in both motor sport and society. In addition, Daimler through the initiative of Emil Jellinek and the technical ingenuity of Wilhelm Maybach, developed a radical racing car. Beyond its unprecedented success story in motor racing events, Jellinek's project has been immensely beneficial to society. It led to the advent of the modern car; with revolutionary technological innovations that have become standard features in today’s car. It also gave birth to the iconic Mercedes marque. According the teams complete technical liberty; in conjunction with a fully-fledged technical competition among the teams; will make Formula One realise its full technological potential; to the immense benefit of society.

Now, the issue of a driver aid is broad and controversial. However, it is absolutely impossible to drive a car unaided. The idea of a motor car is to have various technical systems; mechanical, mechatronic, electronic and such; aid a driver to drive a car. Every system that is useful to a driver; for driving, convenience or otherwise; is a driver aid. And every driver aid has its direct or indirect contribution to the overall performance of car and driver. By implication, the number one driver aid is the engine. This driver aid, as well as other driver aids; since the inception of motor sport to this day; normally gives some drivers significant performance advantage over the rest of the grid. Consequently, as far as motorised sport is concerned, it is perfectly normal for a driver’s overall performance to be heavily dependent on; not just electronic driver aids, but; the vast number of technical systems that make up a motor vehicle. This is what makes competing in cars with identical performances, the basic necessity in a Drivers’ Championship. And a reason why, the technical activities of developing the cars should be a fully-fledged sport competition in the Constructors’ Championship.

Notwithstanding, the effort by the governing body to preserve the relevance of talent and driving skill in motor racing is laudable. And if the goal is to make the skill of driving relevant in racing, then I can help with some clarifications. The successful operation of a car is heavily dependent on a vast number of systems; which is the stuff of the technical players. And the essence of driving is not to directly operate each of these overwhelming number of systems. It is actually the responsibility of the technical players to design these systems to be self-operating and to sort every technical detail of the car for the racing players to have an excellent car to drive. Rather, the essence of driving is to control the speed and direction of a car. In fact, competitive driving entails the skilful measuring of throttling, braking and steering input with the pedals and steering wheel of a car. And proficiency in this skill is the stuff of the racing players. Two deductions can be deduced. The first is that, any assistance to a racing driver in correcting his erroneous driving input; constitutes an uncompetitive element. The second is that, any manual control of any system in a car; other than the control of a car's overall motion; is superfluous to the essence of driving.

It follows from the first deduction that any system in a racing car that assists a driver in correcting his erroneous input to the brakes, throttle and steering; constitutes an uncompetitive element in the sport. Examples include launch control, traction control and ABS. Such systems are uncompetitive; even for a Drivers' Grand Prix where every racing driver's car is exactly the same. Because less emphasis is been placed on talent and driving skill by such interventions. By implication, the less skilful drivers can get away with their errors; all due to the corrections from an "assistant racing driver". This looks unfair. Moreover, it is worthy of note that a team can cleverly and subtly harness systems in their cars, particularly electronic systems; originally intended for some other functions; to correct erroneous driving input. The concerned authorities should be wary of this.

Nonetheless, the first deduction suggests that there is nothing uncompetitive about technical players designing and developing an absolutely excellent car, for their racing teammates, that is a sheer delight to drive! As earlier mentioned, every technical system in a car contributes, directly or indirectly, to the overall performance of car and driver. Such direct or indirect performance enhancement does not constitute an uncompetitive or unfair element in the sport; as long as the system does not correct a racing player's erroneous driving input.

So therefore, technical players should be duly allowed to complete their relay distance before passing the baton to their racing teammates; by sorting every technical detail of the car for their racing teammates to have an excellent car to drive. Technical players should be allowed to freely design and develop any technical system that will be useful to their racing teammates; for driving, convenience or otherwise; provided that such system does not correct erroneous driving input.

By implication, certain systems that have been labelled as driver aids; in an uncompetitive sense; are in actual fact, not uncompetitive because they do not unduly assist a racing driver with the basic skill of driving, even if they may enhance the overall performance of car and driver. Examples include active suspension and power braking. It is also worthy of note that self-operating systems can be designed to constantly optimise car dynamics, handling, braking input, throttling input and such; without correcting erroneous driving input. By way of illustration, torque distribution to the driving wheels; and brake pressure on the wheels; can constantly be optimised, such that; wheel spin and wheel lock does not occur on any wheel; until the varying optimal values for torque and brake pressure has been exceeded on every wheel. Also, the camber and toe angles of each wheel can constantly be optimised; individually and independently of the other wheels; through a corner and on a straight. Active camber and toe systems will definitely increase the efficient use of tires.

Furthermore, the second deduction implies that it is unnecessary and in fact not part of a racing driver’s job description to manually control or adjust the operation or function of any of the technical systems in a car. Except such a driver prefers a manual set-up. The complexity of a modern Formula One steering wheel is not a virtue, but a symptom of superfluity and gimmickry. Sincerely, I see no reason why drivers should be fiddling with switches to repetitively adjust technical functions in the course of a race. In contrast; the purity, focus, simplicity, and straightforwardness of racing a go-kart leaves a lot to be desired in racing a modern Formula One car. Karting typifies the essence of motor racing. I hope that the pinnacle of motor sport will take its cue from the grass roots.

Moreover, the idea of creating artificial opportunities for mistakes, in a bid to spice up the competition; is not only gimmicky and superfluous to the essence of driving, but also superfluous to the essence of a sport competition. The essence of a sport competition is not to create a field of pitfalls and potholes for players to stumble and make mistakes. Rather, it is to create a level playing field for players to compete. In actual fact, levelling the playing field is sure to spontaneously spice up the competition.

Another bone of contention is the transmission of a Formula One car. Some may be of the opinion that shifting gears, manually, is a basic driving skill because it is an established motoring and motor sport tradition. This line of thought is quite understandable. Shifting gears is indeed an essential skill needed to drive a car with manual or semi-automatic transmission. But the fact is, shifting gears is superfluous to the essence of driving. As a matter of fact, a transmission system is necessitated by certain technical characteristics of a reciprocating internal combustion engine. For instance, an IC engine can generate sufficient power to accelerate a car from rest to a desired speed. But, the rev range of an operating IC engine does not match the rev range of a car's wheels. Also, engine torque needs to be multiplied in order to supply sufficient torque to the wheels at low car speed. Otherwise, a car will accelerate slowly at low speed.

Yet, we do not even shift gears because of the technical characteristics of an engine. Rather, we shift gears because of the choice of transmission system employed in a car. That is to say, the necessity for a transmission system does not automatically equate to a need to shift gears, manually. In fact, there are several transmission systems that do not at all require shifting gears to function perfectly. I am not even referring to conventional automatic transmission systems; that shift gears, automatically, over a finite number of gear ratios. But transmission systems that effectively have infinite gear ratios; and thus, do not require the need to shift gears over a finite number of gear ratios to function. Examples include: continuously variable transmission (CVT) and electric transmission.

However, it was practical considerations that led to the popular adoption of the manual transmission system by the motor industry. But today, engineers can efficiently design self-operating transmission systems. As earlier explained, the essence of driving is not to manually operate any of the systems in a car; but to control the overall motion of a car. And the essential input for controlling a car's motion are throttling, braking and steering. Any other input is superfluous to the activity of driving.

This is why I am of the opinion that motor sport authorities should discontinue the use of manual and semi-automatic transmission systems; and accord racing teams the liberty to individually develop and adopt any self-operating transmission system of their choice. By the way, I would like to see the outcome of developing and applying such transmission systems as: electric transmission and continuously variable transmission systems by Formula One teams. CVT was introduced to Formula One by the highly innovative Williams F1 team in the early nineties. But it was banned even before anyone could see its application. If only they had been allowed to enjoy their innovation. It would have given birth to more innovative transmission systems. Which would have percolated through to road cars.

Unlike the conventional manual and automatic transmission systems; these transmission systems have the capability to continuously and seamlessly vary the torque and speed delivered to the wheels, even when the engine is operating at a constant RPM value. This means that such transmission systems will enable an engine to constantly operate at an optimal rev band, regardless of the changing speed of the car.

What is more, an electric transmission system as well as a continuously variable transmission system are capable of obtaining usable energy from the motion of a car. This implies that, such transmission systems are also potential braking systems which, in principle, are vastly superior to conventional braking systems. Because, they can obtain the kinetic energy of a moving car in a form that can be stored and used, when needed, for whatever desired purpose. In contrast, conventional braking systems waste the kinetic energy of a moving car on friction.

Furthermore, it is interesting to note that the Motor Generator Unit (MGU) of a modern Formula One car is actually the basic component of an electric transmission system. This suggests that a Formula One car effectively has two transmission systems; each capable of transmitting power from the engine to the wheels. Is it not wasteful and inefficient, in gross proportions; to needlessly have in a single car, two technical systems that can both perform the same technical function? This is an utterly disappointing situation, especially when the technological reputation of Formula One is considered.

Notwithstanding, I can vouch for Formula One engineers. Because, they are clever, creative, ingenious, enterprising, hard working, diligent, conscientious, methodical, thorough and exhaustive in their approach to solving technical problems. If they had been accorded complete technical liberty when an environmentally sustainable future was set in Formula One, they would have spontaneously got rid of the semi-automatic transmission system, in favour of a vastly superior transmission system that can seamlessly transmit power to the wheels and yet, function as an energy-efficient braking system.

Imagine the cost, space, weight and various resources that would have been saved by doing away with the inferior semi-automatic transmission. But alas, Formula One engineers have to comply with the rigid and prescriptive technical specifications. Indeed, technical specifications heavily limits creativity. I hope that Formula One engineers will be accorded complete technical liberty to unleash their creative thinking and problem-solving abilities. I also hope to see the further development and application of various energy-efficient braking systems, to not only the rear but also the front wheels; and the discontinued application of conventional braking systems.

Now, energy is “given” to a car (with the engine) in order to accelerate it. And energy is “taken” from a car (with the brakes) in order to slow it down. However, from Sir Isaac Newton’s first law of motion, more energy is not at all required to keep a car going at constant speed, regardless of how long a driver desires to keep travelling at constant speed, even if it is forever. This means that, when you speed up to your desired speed, even if it is 500km/h, you can turn off your engine. And your car will continue to move at constant speed, forever, until you apply your brakes. But the sad reality is, occurrences such as rolling resistance and aerodynamic drag perpetually “steal” substantial amounts of energy from a moving car. All the energy supplied by the engine to sustain the constant speed of a moving car, are in actual fact supplied solely to replace the energy lost to these and several other “energy thieves”.

Moreover, they don’t only rob cars at constant speed, but also rob cars of their valuable energy, during acceleration and deceleration. Consequently, more energy than is required to accelerate a car must be supplied to accelerate the car as well as replace what is stolen. However, in spite of their infamy, they possess some virtue. They help drivers, particularly Formula One drivers, to slow down their cars. So, both the brakes and these thieves slow down a moving car. And the brakes as well as the energy thieves do so by taking energy from the car.

But unfortunately, our energy-efficient braking systems are not able to “take” all the kinetic energy possessed by a moving car, during the deceleration of the car; thanks to the “unsolicited help” of the energy thieves. And the more help they render to slow down a car, the more kinetic energy they steal from the car; leaving us with less usable energy. Furthermore, the most notorious of these thieves is drag. He specialises in robbing fast moving cars. As a matter of fact, a considerable amount of a moving car's kinetic energy is lost to him; throughout the period of the car’s motion, but especially at high speed. And the higher the speed of the car, the more the loss. To be precise, the energy lost to drag is a quadratic function of a car's speed.

The above illustration emphasises the dire need to motivate Formula One engineers to immerse themselves in the development of diverse energy-efficient systems that will substantially minimise, if not completely eliminate overall energy loss. Adopting a technical-specification approach to realise this, is sure to yield limited results. For instance, it is true that the 43-year-old ground effect introduced to Formula One by the illustrious Team Lotus, is a highly efficient technique for optimising aerodynamics. This is why the concerned authorities have formulated a new set of technical specifications around it.

But if, Formula One engineers of the seventies were made to work with, say, a 2018 technical regulations; the engineers at Lotus would not have been able to introduce ground effect to Formula One. In fact, they would most likely have abandoned the ground-effect idea right there at the point of discovery, in the wind tunnel. So then, Formula One engineers in our dispensation should be accorded complete liberty to apply their fertile imagination in developing diverse energy-efficient systems. Besides, our liberty approach will put an end to the habit of teams, protesting the legality of their rivals' relevant and exciting innovations. Also, I believe there are ideas waiting to be discovered that will significantly enhance ground effect, or even render it obsolete.

Beyond the development of energy-efficient systems, according the teams complete liberty to individually develop whatever “energy-generating” concept they conceive; has the potential of enormously benefiting society in resolving its energy and environmental challenges. Resultantly, such potential social benefits will attract increased public interest and popularity to Formula One.

I wish to stress that the practice of outlawing innovations in Formula One has been particularly harmful to the technological interests of society. By way of illustration, active suspension which was banned in the early nineties, is vastly superior to an air suspension system which is adopted by some luxurious marques. Active suspension is so extremely capable that it can maintain a constant ride height over rough terrain as well as under heavy acceleration, heavy braking and hard cornering. This means that engineers of production cars would no longer have to make a compromise between comfort and a sporty ride. Instead, a driver can simultaneously enjoy an extremely comfortable and yet remarkably sporty ride.

What is more, Bose corporation, who is a partner with Mercedes-Benz’s Formula One team, spent years developing an energy-efficient electromagnetic active suspension system. And you know what? They creatively applied their expertise in making noise-cancelling sound systems to develop this suspension system. In other words, their active suspension system works in much the same way as your noise-cancelling headphones. As you would expect, this innovative suspension system is an excellent performer. It provides extremely quick reactions to changing road conditions and driving manoeuvres. Better still, it bestows on every wheel the astonishing ability to literally leap over obstacles. The potential application of this suspension system is versatile for both on-road and off-road conditions.

So, imagine that active suspension was not outlawed in the nineties. And resultantly, research and development continued until active suspension became viable for production cars. It would have become a standard suspension system in today’s production cars. Which means you…yes you, my esteemed reader, would have been enjoying the superb ride quality of an active suspension system in your road car. And the same can be said for every outlawed Formula One innovation that had the potential of benefiting society.

This is because, an innovation is normally expensive at the initial stage of its adoption. But it becomes more affordable as R&D continues and as more and more people adopt it. For instance, the motor car itself was initially an expensive toy for the rich, which eventually became a practical mode of transport for every stratum in society. In addition, computer systems were initially so bulky and expensive that only large organisations could afford and maintain them. But today, a regular guy can own a variety of computer systems at the same time.

According the teams complete liberty to develop revolutionary innovations and then assessing their technical performances is an infinitely superior approach for realising the sport's technical objectives; to prescribing technical specifications and outlawing promising innovations.

Nevertheless, it is so heartwarming in these difficult times, to see the Formula One family uniting to employ their technical expertise to support our beloved heroes (healthcare workers), who are at the front line fighting the COVID-19 pandemic: by manufacturing urgently needed medical equipment; as well as pledging various donations for the cause of fighting the pandemic. I pray that we come out of these trying times stronger and more united as a civilisation.

And finally, the contract to construct and supply the Formula One cars that will be used to compete for the Drivers' Championship of the following season; will be awarded to the winner of the Constructors' Championship. These "drivers' cars" will be replicas of the championship winning cars. By way of honour and recognition, the champion of the world will have its emblem placed on the nose of every car it supplies to all the teams for the Drivers' Championship. And the official names for each of the teams in the Drivers' Championship will be compound names consisting of the name of each team and the name of the car supplier; just as the names of engine suppliers are attached to the names of the teams they supply engines.

However, the cars will be constructed to meet the specific requirements of a Drivers' Grand Prix car such as reliability and of course identical performance. In the Constructors' Championship, reliability is a consideration in the technical competition. However, in the Drivers' Championship; all cars must meet a high standard of reliability; such that reliability issues are completely ruled out in a Drivers' Grand Prix. A race in a Drivers' Grand Prix will be said to be technically uncompetitive if any reliability problem rears its head. Our vision for the Drivers' Grands Prix is zero reliability issues. Because, we do not desire any driver to be robbed of his precious racing points by reliability issues. The supplier of the Drivers' Championship cars will be penalised, severely, for any reliability problem that is traced to them. This can come in the form of a demotion in technical position for each reliability issue. And depending on the severity of the reliability issues, such a constructor may be excluded from the Constructors' Championship.

If you ask me, I'd say that this approach of providing identical cars for the Drivers' Championship is far better than contracting a third party to supply spec cars for the drivers' competition. Because, it increases the value and relevance of the Constructors' Championship; since a product of its technical activities can find much needed application in a different competition. Also, our approach comes with the good feelings of been self-contained; as Formula One is able to provide its own cars, in-house, without the need for a third party supplier. Moreover, a car that is developed in the blast furnace of intense competition; is vastly superior to a car that is manufactured by some third party who may not even have the “drive to survive”!

In conclusion, the concepts we have developed in this piece are effective instruments in levelling the playing field in the situations that we have considered. What is more, the equal opportunities of these concepts and the resultant likelihood of ties, even in a Grand Prix, suggest a strong probability of a fight to the finish for the championships. I am convinced that if the concerned authorities adopt these instruments; motor sport will become more competitive, more spectacular and consequently, attain a whole new level of popularity. On a lighter note, I hope that Liberty Media will seriously consider the idea of living up to its name; by according Formula One racing teams the liberty to spontaneously introduce revolutionary technologies to Formula One, at such an unprecedented level; that will desirably impact both the sport and the society. For perhaps, Liberty Media is destined to be in Formula One, at a time like this, to bring liberty to the teams. Oh, I forgot to mention that the drink stored in the car and the drink button are…driver aids! Lewis, take note of this when next you race.

Thank you for your time.

ABOUT THE AUTHOR AND HIS VISION

ABOUT ME

Hi, my name is Emmanuel Eni. I'm a motor sport enthusiast from Nigeria. A personal attribute about me is that; I am passion-driven. Passion is my fuel for assiduity. Passion also induces focus and determination in me. Moreover, I have a flair for conceiving and developing ideas. Furthermore, I do not like to be rushed. I love to take my time to solve a problem as carefully and exhaustively as I can. Consequently, I have a preference for embarking on adventurous and pioneering projects that entails imagination and improvisation.

What is more, I grew up to realise that I am innately, incurably and contagiously enthusiastic about speed, cars and aggressive driving! As a child in my single-digit years, I would imagine and wish that I could have a real car to drive; but scaled down in size to suit my height. Also, I would visit mechanic workshops and car dealers; in my neighborhood (Sapele Road, Benin City); satisfying my curiosity and interacting with as many as would take me seriously.

I have always been fascinated with the technical details of a car. But I prefer, in orders of magnitude, the exhilarating experience of aggressive driving! So much so, I strongly desired that driving would be more than a hobby. However, I had a vague awareness of motor sport in my childhood and teenage years (Motor sport is a fringe sport in Nigeria). The only professional driving opportunities that I knew of, at the time, were in the transport industry. At about the age of ten or eleven, I made a decision that I would become a commercial driver, when I grow up; since it was the closest career opportunity to what I really wanted. Yet, not long afterwards, I reconsidered this decision.

Notwithstanding, I had a life-changing revelation in the year 2010. I was a 20-year-old, 300 level mechanical engineering student at the University of Benin. I came across an advertisement of Toyota Panasonic Formula 1 racing team in a roommate's 2004 issue of "Time" magazine. It was a painful realisation for me. But it marked a turning point in my aspiration. I aspire to pursue my motor racing passion and make an impact in the motor sport industry. As the saying goes; better late than never.

MY VISION

I am very unhappy about the deeply-rooted uncompetitive situation in Formula One. But I believe that, as fans, our concern and involvement can go a long way in effectively resolving it.

I envision a genuinely competitive and "technologically prosperous" racing! I am passionate and determined to make this vision a glorious reality! It's like a personal project to me. My first step to realising this colossal and intimidating vision is formulating my ideas into this book.

And my next step is creating a website, "Closer Racing"; with the goal of disseminating my ideas to motor sport fans, enthusiasts and industry players.

I invite you to visit my website at closerracing.com. And please, share this fresh and promising motor sport initiative with your friends and fellow enthusiasts!

Together, we will realise and enjoy a genuinely competitive and technologically prosperous racing!