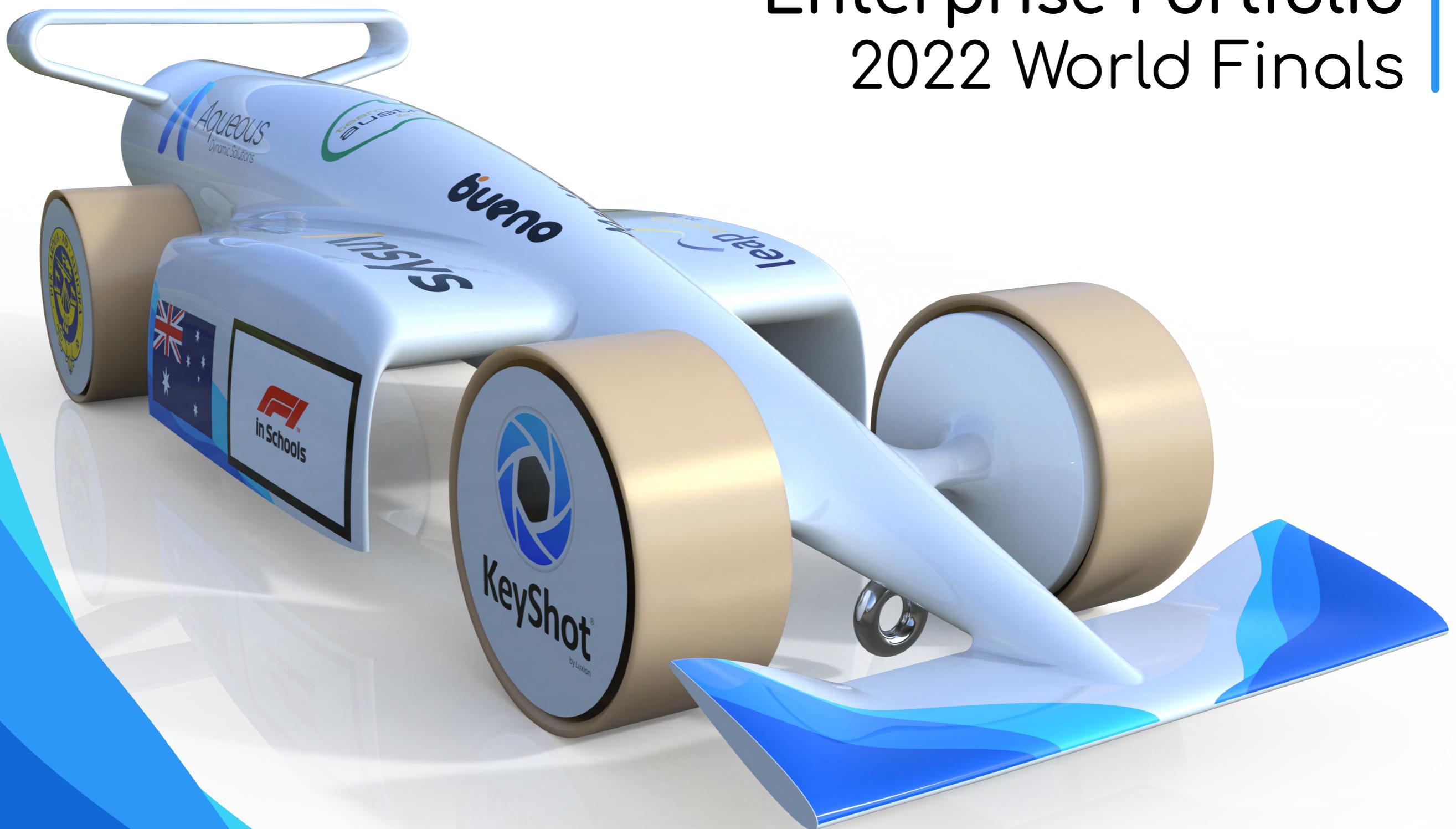


Enterprise Portfolio 2022 World Finals



Aqueous
Dynamic Solutions



Maxident

OBJECTIVE 3D
DIRECT MANUFACTURING

KLAUSEN

morgans **CAPRAL** ALUMINIUM **goodcitizens®** **KeyShot**



Team Identity

Development

Team Values

To begin the development of our team identity, we created a set of values upon which our identity is based:

- Innovation We creatively develop the best of our ideas.
- Commitment Our team is dedicated and diligent.
- Collaboration We work together towards a common goal.
- Development We support and improve each other.
- Adaptation We change to best overcome challenges.

Team Name & Statement

Our name, Aqueous, is representative of our team values emulating properties of water.

Commitment and collaboration require our team to always work together, cohesively and dynamically, very much analogous to how molecules in water behave.

Water, as a liquid, changes its form to suit its container, and this represents our ability to adapt, develop, and innovate to flourish and thrive to overcome any challenge that our team is presented with.

Aqueous is a concise, unique representation of our values, and is an effective team name.

Aqueous

Our team name in its correct font and typography.

To further enhance the representation of our values, we developed a team statement that accompanies our brand and identity:

"Dynamic solutions through innovation, adaptation, and collaboration."

Often abbreviated to 'Dynamic Solutions' and used as a tagline with our logo, this represents our values and also ties into the water theme of our brand as water is a universal solvent and is in itself a dynamic solution.

Our team name and statement provide us with a basis for our team identity and brand.

Colours

Colours provide a basis for our entire brand theme and thus were selected carefully to represent our values and work with our team name.

Given our team name and statement have strong associations with water, variations of blue were chosen for the primary team colours, as blue is also representative of water. Blue is also representative of responsibility, confidence, and reliability, all values we wish to portray in our brand.

For the simplicity of our brand, three primary colours were chosen, each occupying very different places on a blue light-dark gradient. This ensures each primary colour is bold, noticeable, and contrasts sufficiently with other primary colours. This property also allows for flexibility when applying the brand in different contexts. Each of the colours is to be used with a white background and black text.

Our primary colours are defined in both RGB and CMYK for accuracy in both digital and print, and are listed below:

	Bright Navy Blue	CMYK: 93 53 0 13	RGB: 16 103 214
	Brilliant Azure	CMYK: 82 37 0 0	RGB: 45 152 247
	Turquoise	CMYK: 77 13 0 1	RGB: 58 212 246

Typography

Typography, along with colour, is also a basic element of our brand. Before deciding on a font family, two requirements were identified: our typography must be consistent with the organic fluidic nature of our brand, but must also prioritise clarity and readability when required.

Because of this, we opted for two very different font families, each with a different purpose. For titles, we used Comfortaa, chosen for its unique, organic, but still simple form. To ensure that all text and documents convey any information clearly and effectively, for body text, we used Inter, a standard sans-serif font for clarity.

Our team typography Comfortaa (left) and Inter (right)

Logo

Our team logo is one of the most crucial parts of our brand. The objectives for designing our logo were: simplicity, individuality, and accurate representation.

The primary form of our logo is determined by the first letter of our team name, the letter A. We felt this is a simple but effective representation and association with our team name and brand. The specific shape of the A was designed to be unique and recognisable.

The shape of the A allows for great flexibility. Its simplicity makes it easy to implement onto uniforms, small low-resolution spaces, with secondary colour variations (e.g. solid white on coloured background) without losing any important features. The dimensions of the A are also almost square, making it easy to implement with the team name, or as a standalone icon in many different shaped placements.

The colours of the logo are aligned with the water theme of our brand and consist of two unique gradients derived from the three primary team colours. This makes the logo more consistent with our team brand, and more unique and individual.

Branding is a critical component of this competition, and we recognised the need for consistent, but flexible brand application in all contexts and situations. To achieve this, we made sure our logo was condensable and adaptable, meaning it can be adjusted in size, colour, aspect ratio, etc. The logo can also be used as a standalone icon, with the team name only, with the team name and tagline, or with the team name and a document title. The different possible configurations allow for the logo to be versatile, while still maintaining a recognisable and professional centrepiece of our brand.



Aqueous
Dynamic Solutions

*Above: Our full logo including name and tagline (source: team files)
Below: A couple acceptable logo examples (source: team files)*



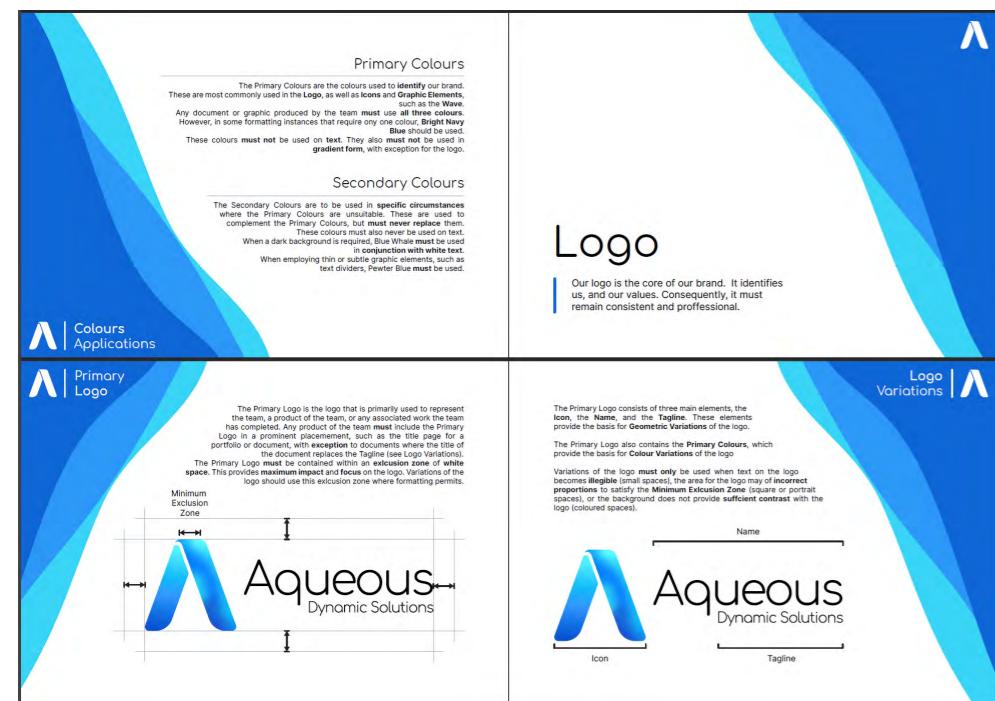
Aqueous

Team Identity

Application

Brand Guidelines

To create a consistent and thorough approach to the implementation of our team identity, and by extension, our brand, we created a comprehensive branding guidelines document. This document outlines every element of our brand, from colour definitions and logo applications to typography and document formatting.



The brand guidelines are designed to act as an instruction set such that every team member understands how to create and implement our team identity and brand into their work. This ensures a consistent and complete approach to the application of our brand and identity.

Graphic Elements

Drawing from the water-based theme of our team identity, our graphic design is largely based around a multilayered wave consisting of our three primary team colours.

As per our Brand Guidelines, this wave is defined as "a set of three overlapping solid colour shapes placed against the edge of a page or content space. Each shape must have a curved, organic edge when the edge is not adjacent to a page or content area border." This wave element is a critical part of representing our team identity in all of our documents, graphics, and visual aesthetic.



Team Uniform

Our team uniform is designed to strongly represent our brand and identity. The primary design feature of our uniform is an accentuated wave pattern. This is an enhanced version of the wave graphic element used on large spaces and is a main feature of the area in which it is placed.

The wave, in addition to prominent placement of our team logo on both sides of the uniform, and the prominent placement of the Australian flag and the REA Team Australia logo on the sleeves, provide a strong representation of our team identity as Aqueous and as proud Australians.



Digital Media

Social Media

A primary focus of our social media content is to promote our team, and thus our team identity and brand.

Every post includes our team logo and a version of the wave graphic element in a prominent location.

With the exception of specific content, this was kept consistent across all social media posts.



Website

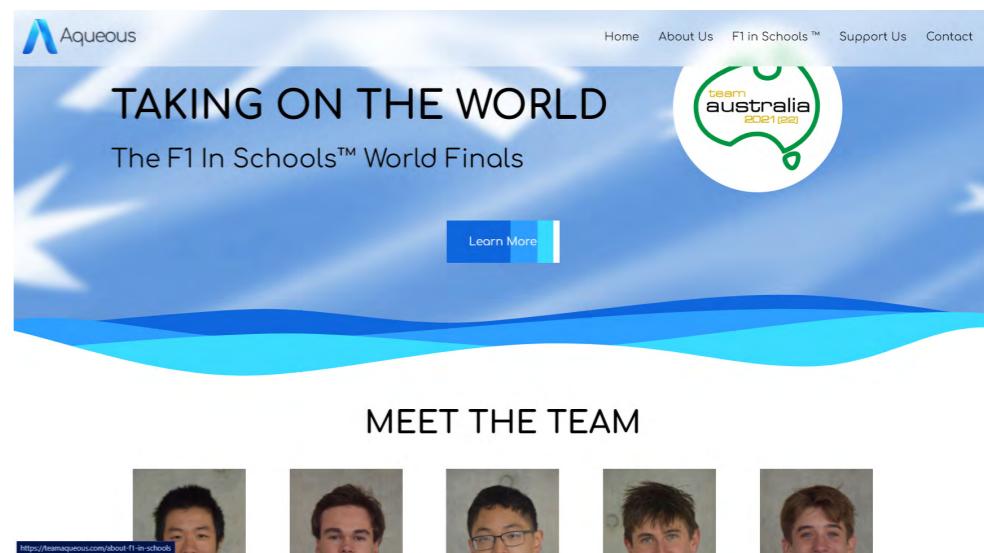
Our website's purpose is to provide an overview of our team and what we represent, and thus our team identity must be applied properly to our website.

Because of this, we wrote our website from scratch in HTML, CSS, and JavaScript ourselves. This way we have complete control over our team identity and brand on our website.

Our entire website is structured around our wave graphic element, which was appropriated for and embedded in the HTML for correct colours, scaling, and positioning.

Our logo is positioned prominently at the top of the page, and all our button animations include a simplified layered effect analogous to the wave.

The content of each page is also designed to showcase our identity and brand, while still fulfilling their purpose.



The Car

As the car is the primary deliverable of our team, it is important to properly represent our identity and brand as part of the car livery. In addition to providing ROI to our sponsors, the car includes the team logo on both sides, the prominent display of the Australian flag, and the inclusion of the wave graphic element on the side pods and front wing.

A render of our car, Neptune IX (source: team files)





Digital Media

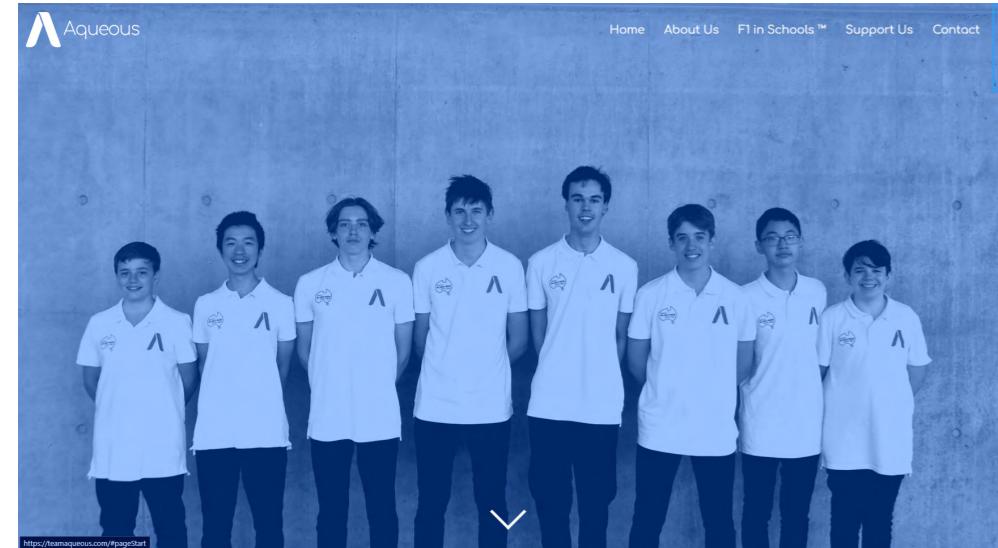
Platforms

Website - teamaqueous.com

Our team website is the core of our digital media presence. It is designed to be the primary place where people go to find out about our team.

Our website includes a homepage that was created from the ground up to showcase an overview of our team, starting with a large header photograph of our team, and leading down to an overview of the content of the website, with links to more detailed pages. Each section of the homepage is designed to be impactful, enticing, and yet informative.

Included on the website is all the information any of our audience needs to know about our team: a page about our values, origins, and our members, a page about F1 in Schools, a page about sponsorship and our sponsors, as well as information on our social media and how to contact us.



The top of our homepage (source: teamaqueous.com & team files)

Our website is the ultimate showcase of our team and our brand, and we wanted to have complete control over the design of our website. Because of this, we wrote our website from scratch ourselves using HTML, CSS, and JavaScript and hosted our website on GitHub Pages with a connected domain.

This not only minimises costs, but also allows us to create and change the website to best represent our team, our values, and our brand. Our brand and graphic design are strongly integrated into the structure of the website, from the wave dividers and font, to the accent colours and button animations.

Team Social Media

Instagram & Facebook - [@teamaqueous](https://www.instagram.com/teamaqueous)

Our team Instagram and Facebook are the primary social media platforms we use. Instagram and Facebook both cater to different audiences in our digital media strategy (see next page), but both serve the same purpose: to allow us to provide general information, updates, sponsorship ROI, and promote our brand to people who choose to follow us and actively expand our audience.

Our team Instagram and Facebook are excellent ways to engage with our audience and supporters and to take advantage of this we also include posts for competitions and other initiatives aimed at involving our community.

To maximise our engagement, every post is posted at times of day when our followers are most active, and each post is accompanied by a related story. We also use stories to provide more informal updates to our followers, as well as to further interact with them using features such as quizzes and questions.

A screenshot of our team Instagram profile (source: Instagram, [@teamaqueous](https://www.instagram.com/teamaqueous) & team files)



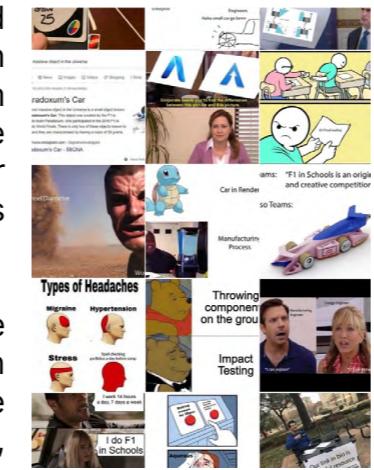
Secondary Instagram 'Meme' Account - [@58gramsneveragain](https://www.instagram.com/58gramsneveragain)

In addition to our primary social media platforms, we devised a creative and innovative way to engage the F1 in Schools community. We run an Instagram page that posts humorous and relatable content about F1 in Schools and is by far the most popular account of its kind in this community.

This type of content is significantly more engaging than our standard content, with posts often receiving five times the number of likes, shares, comments, etc., than our primary social media accounts.

This gives us a unique way to engage with our community, as well as raise awareness of Aqueous within the community and direct people to our primary accounts over a much larger and more engaged audience. Our content has even attracted followers from the broader STEM community, not just F1 in Schools.

A selection of some memes posted on the account.



Discord

We also utilised an Aqueous Community Discord server, separate from our private intra-team communication server, to further interact with our audience.

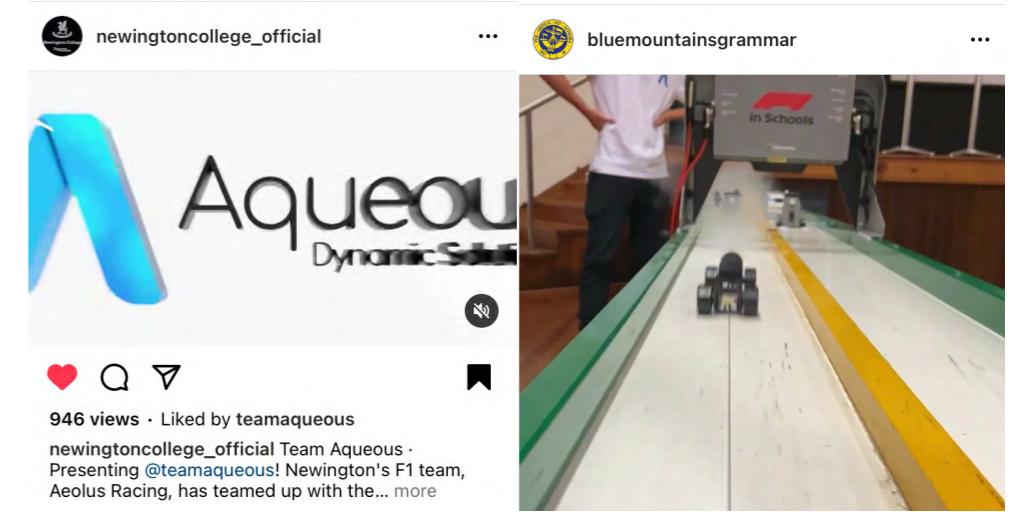
Discord offers a unique way to engage with our communities, providing a platform to discuss F1 in Schools, STEM, or other topics, as well as a place for all our followers and our communities to meet with each other, and for us to meet them.

School Based Media

Social Media

Instead of just employing our own social media, our schools run effective social media campaigns that promote school activities over their entire respective school communities, and we decided to take advantage of this. As we are a collaboration team, we have access to two completely different school communities to promote our team.

We utilised our school's social media platforms for major team announcements, and to generally raise awareness of our team. This proved crucial in gaining a large portion of our team's sponsors, as well as initially gaining local support when Aqueous was formed.



Examples of posts by our schools to promote Aqueous (source: Instagram, [@newingtoncollege_official](https://www.instagram.com/newingtoncollege_official) [@bluemountainsgrammar](https://www.instagram.com/bluemountainsgrammar))

Newspapers & Newsletters

Both of our schools run weekly newsletters, and updates on our team's progress and information on how to support us were posted regularly in newsletters.

Our schools also facilitated articles on our team in local newspapers, which was yet another method of raising awareness of our team in the local and school communities.

Digital Media

Strategy

Overview

Our digital media strategy was designed with a number of clear goals in mind:

- Maximise following and audience
- A high level of engagement
- Diversity of content
- Increase team and brand awareness
- Some focus on sponsorship

There are three main parts to our digital media strategy: gaining sponsorship and providing an effective ROI, correctly targeting and directing our audience, and maximising our audience and engagement for our content.

Audience

When we devised our digital media strategy, we carefully considered our target audiences, and how to best attract each one to fulfil our strategic goals.

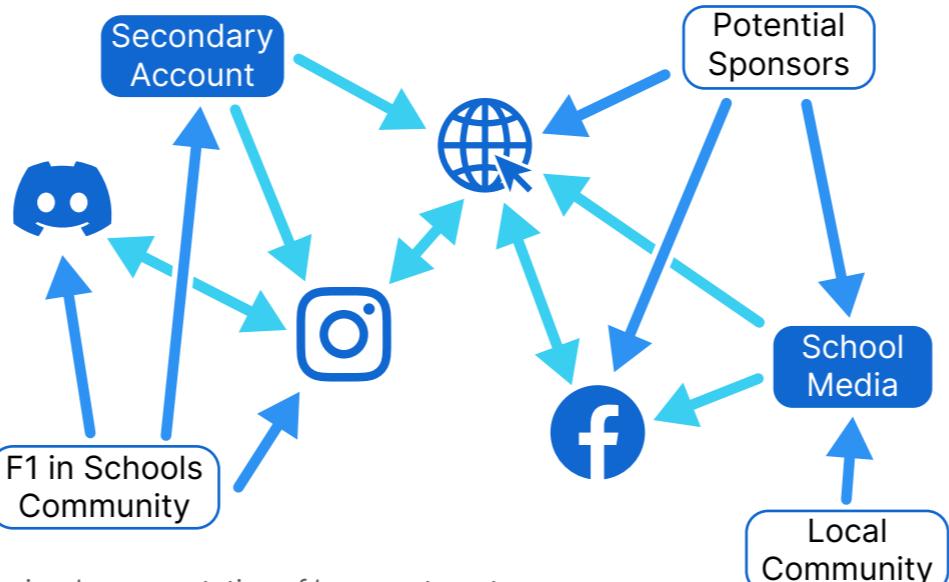
We identified our target audiences as:

- Potential sponsors
- Local communities
- F1 in Schools community

Our potential sponsors consist of a variety of different demographics but are more likely to be middle-aged or older, with secure financial income. Because of this, we primarily treated Facebook and our website as the platforms to effectively interact with our potential sponsors.

The local communities around our schools are a core part of our team's support network and identity. It is important to raise awareness of our team targeted at this audience. Our local communities have a very wide range of demographics, but they can be targeted by location through our schools. Promotional content shared through our schools was tailored to be relevant to our two separate local communities in Sydney and the Blue Mountains.

The F1 in Schools community consists primarily of students in the young demographic, and thus Instagram was the platform of choice to best suit this target audience. Instagram also consists of a diverse international F1 in Schools community, which further strengthens its importance in engaging with and raising awareness of Aqueous with other F1 in Schools students. Similarly, we also extended this to our Aqueous Community Discord server.



Engagement

Competitions

Primary Instagram Account

To further engage our audience and followers we decided to hold a Formula One Fantasy League for the first half of the 2022 season. The winner of the league wins a cutting edge gaming mouse, a popular consumer item among the major demographic of students involved in the F1 in Schools community.

This provided an increase in engagement on our primary Instagram account, as well as allowed other people in our local communities who were interested in Formula One to engage and interact with our team.

Secondary Instagram Account

As mentioned on the previous page, our secondary Instagram account @58gramsneveragain is a separate account run by Aqueous that posts humorous and relatable content, or memes, that are specific to the F1 in Schools community.

This account provides significantly higher engagement than our primary social media accounts, and this is because the F1 in Schools community loves this kind of content. This gives us an incredible opportunity to significantly improve the awareness of Aqueous and our overall engagement with the community.

We took advantage of this by running a 'Meme Team Challenge' where our followers would create a team name, logo, and car in the spirit of memes, and every week we would hold a round where our followers would vote to choose the best Meme Team. This was a huge boost, more than tripling our engagement and doubling our followers over the competition period.



Left: 1st & 2nd place in the Meme Team Challenge
Right: The post graphic for our F1 Fantasy League announcement
(source: team files)



Virchandise

As a way to engage and interact with our audience, as well as promote the team, we decided to create Virtual Merchandise, or 'Virchandise'. This provided us with a way to give back something to our supporters and followers, while also providing a level of interest and engagement to our digital media other than simply delivering information. This was also particularly effective because, due to COVID-19, offering physical merchandise was not always practical, but still allowed our supporters to represent us digitally.

An example wallpaper from our wallpaper collection. This was our first set of virchandise to be released on our digital media platforms
(source: team files)



Sponsorship

As sponsorship is our team's primary source of finances, it is paramount that we maximise our opportunities and appeal for sponsorship.

To do this, we first created a professional and effective brand and implemented this into our digital media to create a sense of values and brand that sponsors would like to be affiliated with. Much of our website content is primarily designed with this in mind, allowing sponsors to understand our values and align with them. We also have an effective ROI plan for our digital media, such that our sponsors receive promotional material on our social media and website. These, combined with a large audience, allow our team to be promoted as an opportunity to as many potential sponsors as possible through digital media, as well as our current sponsors receiving part of their ROI.



Sponsorship

Return On Investment

In order to create and maintain a sustainable relationship with our sponsors, Aqueous developed a rigorous and detailed stakeholder engagement and Return on Investment (ROI) plan, which included different levels of sponsorship made available in our Sponsorship Prospectus.

Acquisition of Sponsors

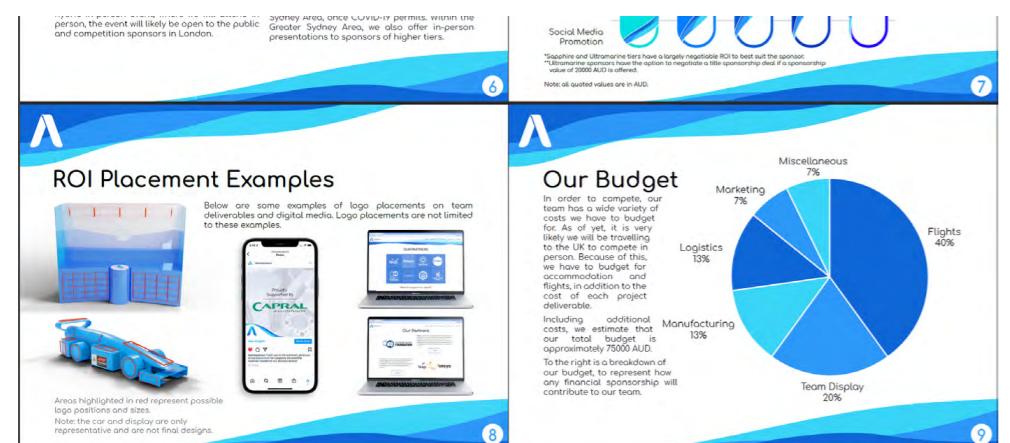
Aqueous aimed to work with the support of local industry leaders. In-person communication with potential sponsors was difficult due to the restrictions of the Covid-19 pandemic.

Therefore, Aqueous focused on a predominantly virtual sponsorship interaction strategy, and primarily acquired sponsors through an email with our detailed sponsorship prospectus and follow up call.

Sponsorship Prospectus

The sponsorship prospectus was our primary marketing material. This document concisely and effectively outlined our marketing strategy to all potential Aqueous sponsors and partners. We believed that transparency and detailed communication was vital to all relationships in business, and therefore created this information document for clarification.

We used our prospectus primarily to communicate the goals and identity of our brand. This allowed us to ensure that our objectives aligned with those of our sponsors, such that we could collaborate and develop a relationship that benefited both parties. Furthermore, the sponsorship prospectus emphasised, through clear graphics and explanatory text, the hierarchy of our sponsors and partners, for example outlining the quantitative return on investment based on the value of the sponsorship.



A set of example pages from our sponsorship prospectus (source: team files)
See <https://teamaqueous.com/files/sponsorship-prospectus.pdf>

Tiered ROI Strategy

All sponsors are informed of our Return on Investment strategy through digital communications and throughout our Sponsorship Prospectus. Logo placement is the core of our sponsorship strategy - in return for their support, we provide appropriate ROI benefits, particularly through increasing their brand exposure and awareness of our participation in the competition through placement on our trade display, portfolios, uniform and car. We further acknowledge the contributions of all our sponsors throughout our social media and team webpage. This allowed us to provide suitable ROI through a range of multimedia platforms.

Our ROI benefits system is tiered based on the estimated value of support provided by the sponsor - this is negotiated to ensure that our stakeholder relationship is suitable for both parties, and ensures that sponsors providing financial support receive equal benefits to those providing equipment or mentorship. The graphic and information provided in our prospectus served as an effective guide, and we individually discussed return on investment with sponsors in order to maximise benefits.

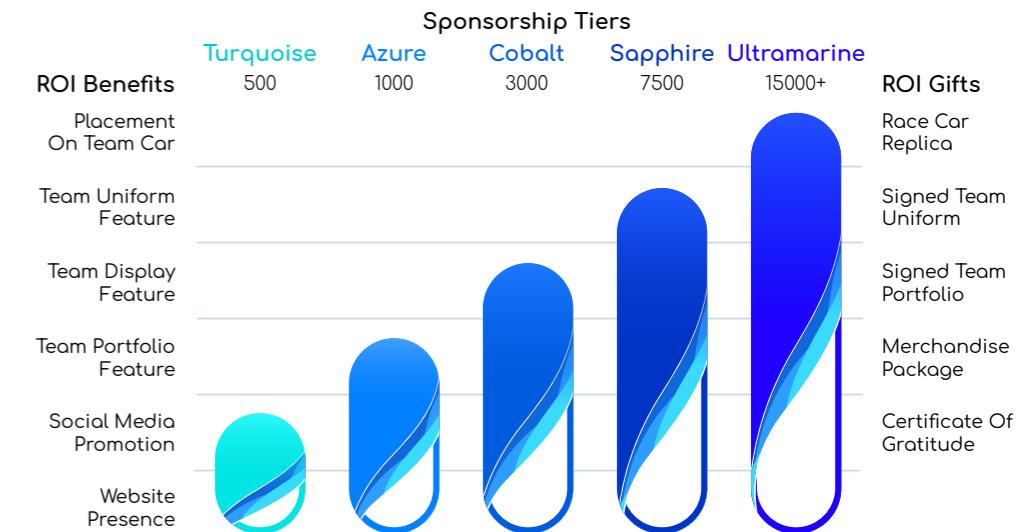
We understood that companies sponsored teams on the F1 in Schools world stage to gain benefits beyond the expansion of their brand awareness in a demographic of young people. From our experience with these industry leaders, we recognised that they also supported teams like Aqueous in order to engage with our generation, and support our community and the future of STEM. Explaining our commitment and involvement with the program, and its impact on youth, was therefore also a key part of our sponsorship and partnership interaction strategy.

As a token of our appreciation for their contribution, both directly through financial aid and skills partnerships, and indirectly through sharing their experiences as leaders in the STEM industries, to our progress in the competition, sponsors also receive merchandise gifts as part of their return on investment.

Stakeholder Communication

In order to keep track of our engagement with stakeholders, we recorded all contact details and relevant information of our stakeholders in a shared file, so that we could communicate appropriately and in a timely manner. This file was updated regularly and ensured that our interaction with stakeholders was effective.

In addition, we updated our sponsors regularly on our progress, and if they supplied us with a product or service, a detailed update on how their product/service has contributed to our team and our learning experience.



Our ROI tier chart from our prospectus (source: team files)

Sponsorship Opportunities

We offered three sponsorship pathways for potential partnerships with sponsorship stakeholders. Aqueous understands not only the importance of financial assistance, but also collaborative or mentorship opportunities within industries, which should be recognised as sponsorship.

Financial Sponsorship

Companies were able to support us monetarily, by providing us with financial aid. In return, we compensated their support through our return on investment sponsorship brackets, where they would receive brand recognition on our project deliverables and social media outlets, while also receiving gifts as tokens of appreciation.

Product & Collaboration Sponsorship

Another form of sponsorship that we offered potential stakeholders was product sponsorship. This was the most common type of sponsorship we received, where collaborators would provide their goods and services to us gratuitously. These sponsors would be compensated for their sponsorship by aligning the monetary value of their given product or service with the corresponding sponsorship bracket.

Mentorship

We also offered the opportunity to provide a mentor sponsorship, where companies could provide advice and assistance on topical subjects such as sustainability, management, engineering, etc. We recognised that information is invaluable to have in the world we live in today, and it should be treated as such. Mentorship sponsors also received compensation for their advice, being recognised as an official sponsors of Aqueous.



Sponsorship

Primary Collaborators

Industry Sponsorship

Aqueous recognised that sponsorship was essential to participation in the World Finals. As part of our Return on Investment, we outlined how each of our collaborators, leading their respective industries, helped us in our journey in this section of the Enterprise Portfolio.

Throughout the 2021/2022 F1 in Schools season, these diverse companies, brands and industry leaders, provided us with critical financial support. Furthermore, their exceptional skills and further assistance through mentorship and access to their world-class products and services significantly benefited our experience and project deliverables. Overall, our sponsors made pivotal contributions to the success of our project, aiding us with the resources necessary to undertake all of our project deliverables with high quality.

Maxident

Maxident is a certified dental laboratory with a team of highly qualified laboratory technicians who specialise in ceramic restoration, whilst also manufacturing a wide range of dental products. A local industry leader in the field of ceramics technology, Maxident's precision manufacturing facilities and materials were crucial in our engineering process. We worked extremely closely with Maxident with regard to our wheel system. They provided mentorship and advice on our wheel structure and choice of material, and greatly contributed to our design process. As a new team challenging the World stage, the support of an experienced industry collaborator ensured that our physical deliverables were of the best quality. Their expert advice ensured that we worked with world-class precision in our wheels system.

Additionally, Maxident provided the equipment necessary for manufacturing our PEEK wheel systems. With their support, we created a unique and innovative hexagonal "honeycomb" structure which was only possible to manufacture via their precision SLA machines. Overall, Maxident's technical support was greatly beneficial to our project outcomes.



Maxident

Above: Maxident's logo
Left: A photo of our wheel design
(source: maxident/team files)

Our Sponsors



Maxident



KLAUSEN



Re-Engineering Australia Foundation

REA Foundation is the coordinator of F1 in Schools in Australia. REA's guidance throughout the Australian competition and in our preparation for the World Finals has been invaluable to our team, providing us with essential advice and services. Their emphasis on effective project management was critical to our participation in this competition, ensuring that we had the necessary resources in order to create effective organisational and administrative tools. In particular, they allowed us to use their facilities to host our project initiation meeting and organise our team identity.

We utilised their CNC milling machines in order to manufacture our car. Furthermore, they supported our project timeframe, providing us with essential mentorships/connections, and informing us of necessary information pertaining to the competition.

REA's logo
(source: REA)



Keyshot

Keyshot is a 3D rendering software that allowed for Aqueous' development of visually effective and accurate graphics. As part of our partnership, Keyshot provided us with access to their licences, allowing us to demonstrate scientifically accurate materials and lighting properties using their software. In addition, they provided invaluable mentorship and advice through online workshops, educating us on how to best use their software in order to maximise the accuracy and usefulness of our renders.

LEAP Australia/Ansys

LEAP Australia is a specialist technology solutions company, providing software to various industries. They are a local leader in the distribution of product development technology, which reduced our costs, and improved productivity and quality of physical project deliverables. In particular, they provided Computer Aided Engineering (CAE) software including ANSYS licences to assist our design processes, as well as providing our engineers with a set of online workshops to teach us how to use and understand the software. This was critical to our engineering process, as much of our design decisions were founded on virtual analysis results using Ansys.

Bueno

By centralising building management at scale, Bueno helps teams harness the power of Smart Building Analytics to create a more sustainable future. They supply businesses with superior insights to enable them to achieve ambitious net-zero targets, lower operational expenses, and improve resource management. Enthusiastic about youth in STEM, Bueno generously donated to our team, providing financial aid to assist our project progress.

L.E.K. Consulting

L.E.K is a global consultancy firm, helping companies and organisations find innovative solutions and develop strategies, to amplify growth and maximise potential. In addition, L.E.K has been delving into the climate crisis, striving to have a net-zero carbon footprint by 2030, and catering their consultancy business model to be more sustainable and eco-friendly. With an interest in STEM careers, L.E.K provided us with financial assets to enable us to compete to our highest potential.

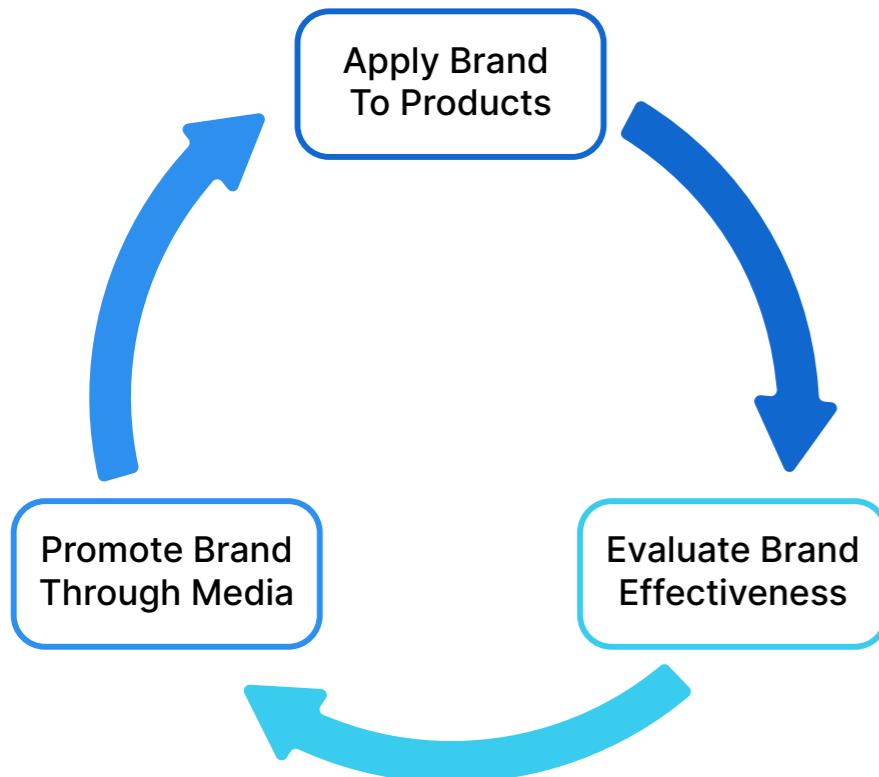
Marketing

Marketing Strategy

Through marketing to the community, our goal was to effectively spread brand awareness through both the digital and real world. This was important in increasing the ROI for our sponsors. We generated clear goals utilising key performance indicators, so we could track the effectiveness of our marketing strategy.

- 1) Become a recognisable brand inside the F1 in Schools Community
- 2) Encourage youth to join STEM pathways by promoting our key messages
- 3) Effectively promote our sponsors to achieve their ROI

To achieve this, we formulated a 3-step cycle plan, applied throughout all facets of our marketing materials:



Executing our three step marketing plan (source: team files)

Community Engagement

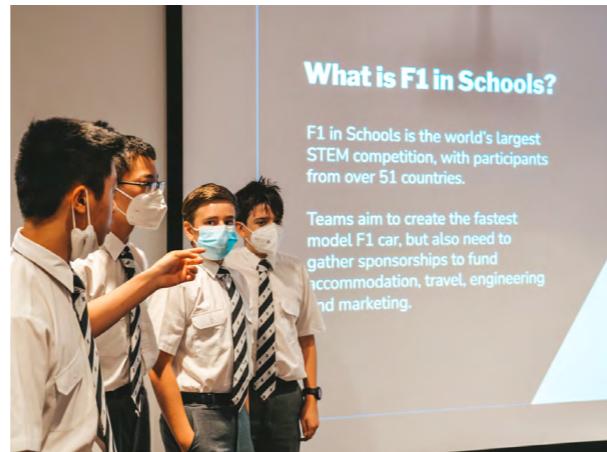
Engaging with our community beyond our stakeholders was essential to our marketing and enterprise strategy. Aqueous aimed to continue the legacy of F1 in Schools and STEM education across our generation of youth, by working with younger students. By engaging with members of the local community we also established a significant brand presence.

Local Outreach

To become a recognisable brand throughout our local community, we interacted with many local media outlets. When aiming for media coverage, we mainly focused on newspapers and online articles. This was because of the relatively high effort-to-reward ratio that we found with these articles, when compared to the much higher effort required to receive televised coverage, due to the high amount of planning and logistical issues that come with television coverage. For this reason, we mainly contacted newspapers. This led to the local Blue Mountains Gazette writing an article on our team, marketing the Aqueous brand.

Workshops

We hosted a workshop at Newington College with primary students aged 11 and 12 from the local area, to discuss the importance of STEM to our future as the younger generation, and promote the F1 in Schools program. We held a Q&A session with a short presentation, engaging with them and telling them our story as Aqueous. This workshop was important in encouraging youth to follow STEM pathways, in an interesting and fun way, giving them an understanding of opportunities that they may wish to pursue in the future.



Aqueous giving a presentation introducing F1 in Schools to primary school students
(source: team files)

Working With Local Businesses

Aqueous also aimed to engage with an older local demographic of businesses to form stakeholder relationships and promote the importance of STEM development. These were done through a combination of virtual and in-person meetings discussing our objectives, the aims of the program, and the marketing strategy of the program. We specifically chose to partner with various local businesses, to support our local community, thus providing them ROI. An example of this was Good Citizens. We had in-person discussions with them, discussing their objectives in our sponsorship, which allowed us to tailor our programs towards achieving their maximum ROI.

Merchandise

Aqueous chose not to manufacture physical merchandise to ensure that we consumed minimal unsustainable resources. Minimising waste was a key component of our sustainability strategy (refer to the sustainability page in the Enterprise Portfolio).

Merchandise materials including bottles and hats often require significant quantities of plastics which cannot be recycled. Therefore we limited merchandise solely for ROI and engagement with stakeholders. For this reason, we created a virtual merchandise campaign (coined Virchandise) as part of our digital media strategy. This way, we could effectively promote our brand, while being environmentally sustainable.

Legacy

As part of our enterprise strategy, we ensured that purchases of equipment, including 3D printers and accessories, were reusable and could protect the F1 in Schools program for future years. Through this legacy, Aqueous aimed to establish a tradition of success in the F1 program within our respective schools.

Formula One Paddock

Aqueous had the incredible opportunity to visit the 2022 Formula One Heineken Australian Grand Prix. Thanks to our connection with Re-Engineering Australia, we had access to the paddock across two days and spent the time marketing Aqueous to and developing relationships with Formula One teams and industry.

This experience not only allowed us to showcase our team, but also gave us insight into careers in engineering and the Formula One industry.

Our team meeting and discussing F1 with McLaren Team Principle, Andreas Seidel (source: team files)





Sustainability

Overview

Aqueous recognised that sustainability was an important factor in all physical projects, and the F1 in Schools World Finals was no exception. Therefore, ensuring that our enterprise and engineering tasks were sustainably executed was of utmost importance.

Aqueous evaluated the sustainability of our team's participation through three areas of consideration: environmental, economic and social sustainability.

Team Sustainability Statement

Earth is the only planet that we have. Recognising the rapidly changing nature of the environment and climate, Aqueous acknowledged the essential nature of sustainability to our participation and our planet through a team sustainability statement:

"Aqueous aims to ensure that our participation minimises waste production, consumption of unsustainable resources, and is socially and economically sustainable."

This sustainability statement guided Aqueous' design and manufacturing processes, and all project outcomes.

Environmental Sustainability

Reduce, Reuse, Recycle

The use of sustainable resources and reduction of waste was a fundamental component of Aqueous' sustainability strategy, particularly our commitment to environmental sustainability. We partnered with Good Citizens, a local sunglasses business that creates sunglasses from recycled plastics. We discussed an environmentally sustainable plan for our team which we have incorporated into our team sustainability statement and integrated into our project elements.



Goodcitizens sunglasses pictured with our sponsorship prospectus (source: team files)

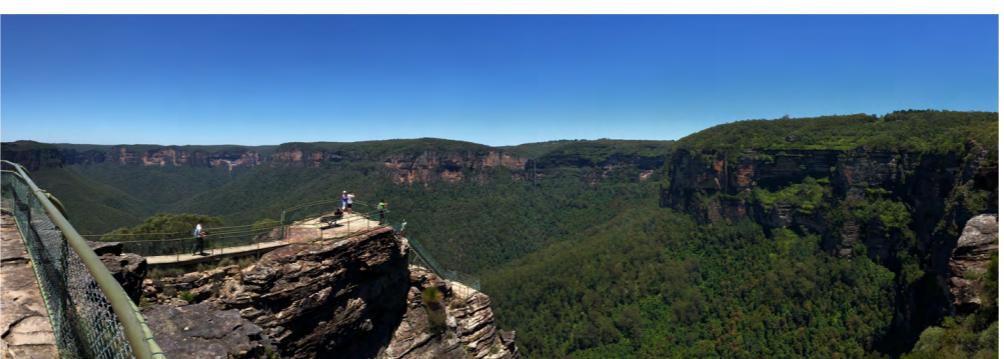
By carefully evaluating the quantity of material needed for physical testing we ensured that our participation in the competition was sustainable. Furthermore, we re-used physical components as much as possible, for example testing rigs and existing acrylic scrutineering tools, in order to reduce the resources consumed in the competition, and minimise waste output. We also ensured that any rigs specifically designed and manufactured for Aqueous in the 2022 competition were reusable for future students from Newington and Blue Mountains Grammar School participating in F1 in Schools.

In addition, our team opted to utilise digital technology and media as much as possible, rather than create physical products that use materials and produce waste. An example of this was our Virchandise campaign, as part of our community engagement and digital media strategy. This allowed for the same level of engagement that physical merchandise provides (i.e., t-shirts, keyrings), but removed the waste and unsustainable aspect of producing these items. In such a prevalent digital age, the use of digital media has become highly accessible and even more impactful than physical items when it comes to a marketing campaign.



An example set of virchandise, team wallpapers (source: team files)

Environmental sustainability is not just a fundamental component of our sustainability strategy, but is also very important to us individually. The Blue Mountains half of Aqueous lives in the centre of a World Heritage listed National Park, and thus preserving the environment is a core value of our identity.



Pulpit Rock Lookout, Blue Mountains National Park (source: Nick Hayes, our Brand Coordinator)

Social Sustainability

This consideration involved the promotion of our sustainability strategy considering social factors. We engaged with our community and stakeholders in order to achieve this.

For example, we worked proactively with the Newington College community in Sydney, hosting a workshop with younger students, and with members of the Wyvern primary school, to discuss our participation in F1 in Schools, and the significance of sustainability in STEM and in society.

This was an opportunity for Aqueous to promote our sustainability strategy to the target demographic of young people, allowing us to guarantee that our participation in the World Finals was socially and sustainably effective.

Economic Sustainability

Focus on Local Businesses

Guided by our sustainability statement, we partnered with local, sustainable industry leaders. This was key to ensuring that our project was economically sustainable.

In order to protect the limited resources available to us, reduce waste and carbon emissions from transport, and contribute to the local economy, we adopted an economic sustainability model which involved working with local, Australian sustainable businesses as much as possible. We looked to these industry leaders for inspiration to ensure that our project was environmentally sustainable. Furthermore, by partnering with local businesses, we massively reduced our team's carbon emissions from travel and transportation. For example, in order to conduct physical testing, we collaborated with Maxident, a local dental manufacturing business based in Sydney to produce our wheel systems.

In Aqueous' decision to focus on partnerships with local businesses, we not only reduced waste and carbon emissions, but also supported the local economy.



Our Design Engineer Harry at Maxident, working with them to produce our wheels (source: team files)

Trade Display

Design Process

Overview

Our approach for our trade display entailed the use of an iterative design process, which focused on approaching the pit display through two separate design philosophies; aesthetics and function. Our aim was to design a pit display by reiteratively developing the two separate displays covering one of the two pit display criteria, to have a well-rounded display that contained the best part of each design principle. To do this, we explored this process through sketches and CAD prototypes, allowing the development of a pit display within a 3D environment, while also facilitating the creative freedom of sketched designs.

1 - Aesthetics

This design prototype focused entirely on emulating our team brand, structural aesthetics, and audience engagement. This meant that the display was purely designed to attract people, with little regard placed on the functionality. This also meant that the display manufacturability was compromised, in order to create an attractive final product. This initial prototype incorporated large wavy structures for graphics, utilising our team brand principles.

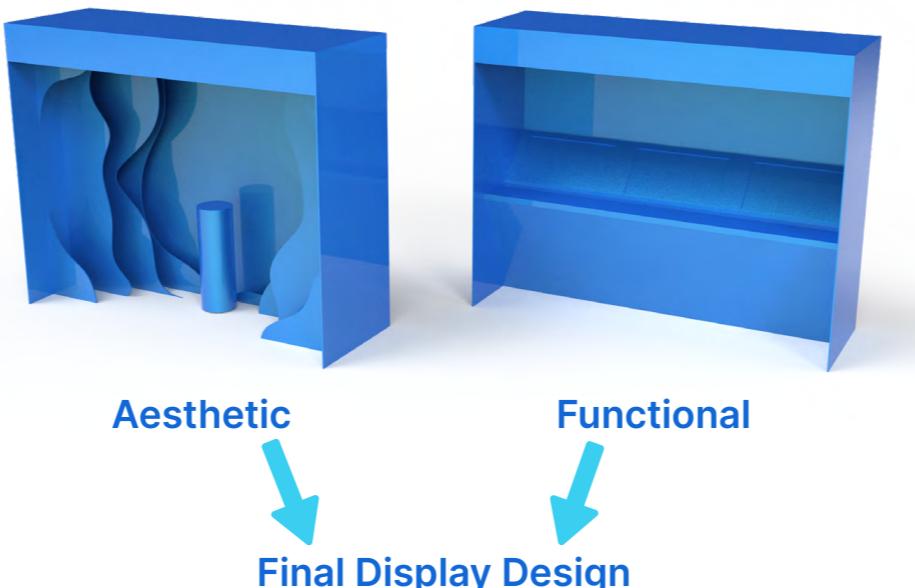
2 - Function

Our other design approach revolved around functionality, i.e., a structure aimed at providing spatial features for ICT integration and graphical content, whilst also being manufacturable. We approached this design philosophy by mimicking an actual F1 pit wall. This initial prototype allowed us to maximise ICT integration while being a standard, manufacturable structure that easily displayed content.

3 - Final Design

Our innovative design process meant we were able to create our display design which maximised aesthetics, functionality and practicality. We adopted the use of curved edges and smooth walls from our aesthetics approach, reflecting the fluidity of our team brand whilst also creating natural vectors for the audience to focus on certain aspects of our display. The top panels are also concave, creating a vantage point when a viewer is standing in the pit display which makes textual content easier to read. The bottom panel is a symmetrical wave-like curve, with indentations to allow viewers to enter our display. This uses emphasis and rhythm, inviting viewers to enter our pit display through a subtle curve, rather than having a vertical panel that discourages interaction.

As for functionality, the table utilises an overhang, increasing the amount of desk space without sacrificing moveable space within the booth for individuals to walk into. An extruded shelf provides variation whilst also having the function of displaying our car and containing refurbished monitors.



*A diagram representing our display development thought process
(source: team files)*

Material Selection

Even though this display is virtual, we considered and planned our design as a physical display. We opted to choose sustainable and renewable materials for our hypothetical construction, keeping in mind financial constraints.

For the structure itself (i.e. panels, table, walls), we opted to utilise recycled cardboard. Cardboard is a strong material that is easy to manipulate whilst also being lightweight and inexpensive. In addition, it can be slotted together to create a sturdy structure. It is an eco-friendly material, being 100% renewable, and allowing us to recycle it after to minimise our environmental impact.

We also considered sustainable printing ink for our graphics, as most trade displays are printed using plastisol ink, a highly unsustainable material. We researched the use of latex ink, a water-based ink, a more eco-friendly alternative to solvent-based inks. Latex is also 100% degradable, decomposing in six months, allowing us to fully recycle our graphics panels.

In addition, the two monitors on our booth would be refurbished, saving us money, whilst also being less wasteful (compared to purchasing new monitors). After the competition, we would be able to donate these monitors to computer part companies or even refurbish them again, to minimise our waste.

Physical Construction

Throughout our display design process, we kept in mind the manufacturability of our booth, ensuring the structure could be constructed for a physical display. In doing this, we considered budgeting constraints, time constraints, and the prospect of overseas shipping.

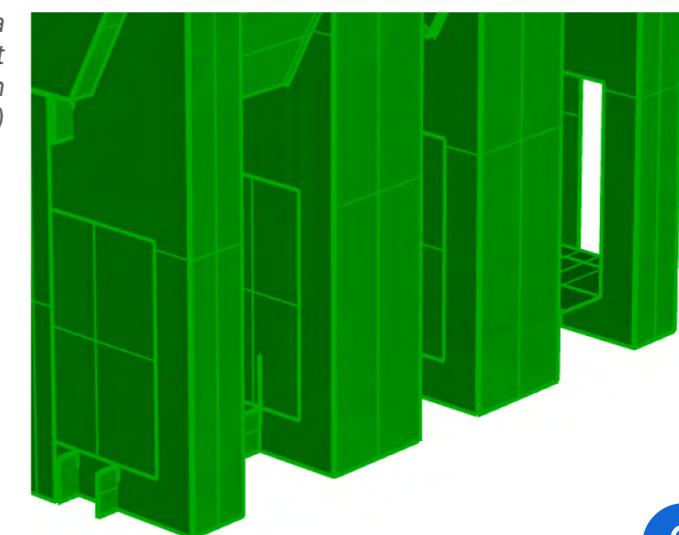
Our highly sustainable material choices meant that we could purchase cheaper materials that wouldn't have a large impact on our budget. In addition, even though our display utilises curved panels and edges, we made sure that it was manufacturable with our choice of material.

We planned to laser cut vertical segments of a cardboard panel, enabling us to curve it into the shape we desired for the pit display. The design itself aims to be manufactured in two months, a reasonable timeline for a fairly complex design. We also made sure that most aspects of the pit display were to be manufactured in-house, rather than outsourced to external manufacturers which would be expensive.

For international shipping, we integrated an assembly strategy to disassemble and reassemble our design for ease of shipping. Firstly, the majority of cardboard material means that our entire display is lightweight, and can be flattened for ease of transportation. The majority of the display would be constructed of parts that are slotted together, creating a strong structure whilst being easily deconstructed. This jigsaw-like connection also means a quick disassembly and reassembly.

In keeping with our material choice of recycled cardboard, we had to create a structure behind the display that was capable of supporting the panels, monitors, and other loads on the display, in addition to being flat packed. A set of cuboidal columns of cardboard was suitable for this purpose.

*A screenshot of a structure concept design
(source: team files)*



Trade Display

Final Design

The objective of our trade display was to encapsulate our team brand, presenting us in a professional manner, whilst being interactive and engaging for an audience. The overarching theme of our pit display stemmed from two design philosophies: aesthetics and function. Through our iterative design process, we merged the best aspects of aesthetics and function to create a pit display that emulates the Aqueous brand and incorporates innovative structure and ICT integration.

Each aspect of our trade display was intentionally designed for an exact purpose. Each component, graphic piece, and feature went through countless iterations with a significant and outstanding role, whether to attract viewers, create visual appeal, or for practicality.



A render of our final trade display design (source: team files)

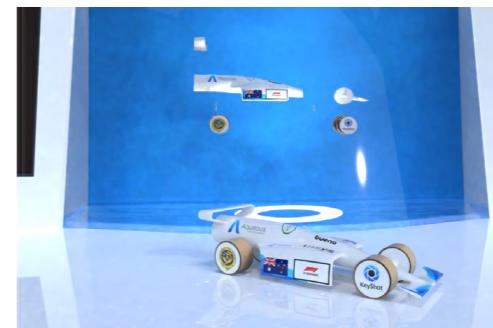
Primary Elements

ICT Integration

ICT is one of the main attractions on our trade display. We incorporated two identical 16:9 flat-screened refurbished monitors, sitting on a slant, making it easier for viewers to look at and engage with. To control these screens, there are two buttons, used to navigate our app which contains a wide array of documents and marketing materials created by our team (e.g., sponsorship prospectus, render booklet), so the audience can read more in-depth about our journey. We chose to use buttons to control these screens, rather than a touchscreen device, as it is much sleeker, more intuitive to explore our app, and appears more professional. This has the effect of creating a more effective display through integration of ICT.

Car Display

A unique aspect of our display is our resin suspended exploded car display, creating a 'water-like' effect. At the forefront of our display, this car display is highlighted by a vertical ring light. These display our car in an innovative way, also fitting with the 'dynamic' brand image. This showcase of our car makes it the centrepiece of our booth, engaging viewers to enter our display.



A render of the display of the team car
(source: team files)

Curved Walls & Edges

Our display is predominantly constructed of curved edges and walls. This was a purposeful decision to reflect our fluid-like brand identity, having aesthetic purposes, and to direct vectors for the viewer to follow. The whole pit display itself curves around a central point - where the viewer stands. A viewer is able to enter our pit display and be immersed in it as the wrap-around structure covers the viewer's entire eye line, with all of the content and graphics facing the viewer from one vantage point so they can see everything clearly.



A render highlighting the curved form of our display
(source: team files)

Multi-Staged Platform

In order to achieve a further layer of depth, we split up our main shelf into two main sections with varying elevation. This had the important effect of allowing for ICT integration, as well as displaying the car. The tiered approach also acts as a vector towards the main graphic reinforcing the team's central purpose.

Information Content

The information we displayed on our display encapsulates Aqueous' experience as a team. We chose to represent the two core aspects of F1 in Schools on it: enterprise and engineering.

The top left panel displays an "about us" and "meet the team" section, giving the viewer an idea of who we are, and where we have come from. The top right panel displays our engineering process, from our design phase to our manufacturing phase, illustrating our car as an annotated exploded-view diagram. The centre front panel displays Aqueous, the collision of enterprise and engineering, as a large-scale render of our final car design and our team logo.

We attempted to minimise text as much as possible, opting for large images to engage the audience's low attention span. On the bottom panel, we displayed our key sponsor's logos, promoting their companies as part of our ROI plan. We placed them at the bottom of the pit display as people naturally read from top to bottom, meaning, our sponsor's names would be the last thing read in the short-term memory of the viewer. We used salience in the large-scale, whited-out, condensed logo on the bottom. Being an attractive feature that is recognisable from afar, for viewers to identify as our pit display.

Graphical Content

The thought process behind our graphics followed two key avenues: maximising the engagement between the audience and our content, and maintaining consistency with our team identity.

The curved walls and edges work hand-in-hand with the flowing graphics. Semi-parallel graphical features (bottom left quadrant and top right quadrant) create vectors for the eyes to follow, encouraging a viewer to look at our pit display from left to right, top to bottom. The use of negative space supports our pit display's quality in two ways. Firstly, it increases emphasis and attention of the focal points e.g. main car render on a white background. Secondly, it stops the content from becoming cluttered and overstimulating for the audience. Our branding focuses heavily on balance in the presentation of different types of content as we understand how influential this is to the information's impact.

Marketing Material

Our pit display integrates the use of digital and virtual marketing material, rather than physical materials, which would be less environmentally friendly to produce and is also cost-inefficient. We have included a QR code to all of our links, which connect viewers to our social media pages, and virchandise - our virtual merchandise campaign. This way, the audience can quickly access our online resources anywhere at any time. In addition, the monitors display all of our marketing material, such as our sponsorship prospectus and enterprise portfolio, detailing our marketing strategy and the deliverables we have created.



Aqueous

Dynamic Solutions

