Regional Rail Revival Design Challenge 2050 Evaluation Criteria Unpacked

Use this document to understand what you need to do for each section of the competition evaluation.

The Regional Rail Revival Design Challenge 2050 asks young people to submit their ideas to improve the rail experience in 2050. Whether your ideas are about the on-board experience, improving the way people get around the station or using smart and sustainable tech for a more enjoyable journey, we'd love to hear them. Through this competition, students will use design thinking processes **to develop a prototype in response to the competition brief,** and will receive professional assistance with prototyping and pitching their solution.

Team: _____ **School:** _____ **Year level:** _____

Prototype (circle): *Technology or app-driven transport solution/ Communications campaign/ Product prototype/ Building or system design*

Prototype Description: _____

Empathise + Define Teams identify the RRR transport needs of a user or group of users

Novice		Intermediate		Expert
Our team has **identified** our user needs. *For example, 'A student who has trouble doing school work on the train.'* We have **summarised how** work has changed due to technology. *For example, 'A lot of our learning is done online instead of in a workbook.'* We have **presented** our user needs and the technologies we will use. *For example, 'We are going to design an onboard learning and work space for student.s We will 3D print our design. '*		Our team has **explored** our user needs. *For example, 'Our user Is a student who has trouble doing school work on the train. We have given examples of different problems and needs.'* We have **explored** how the way people work has changed due technology and predicted how it will change in future. *For example, 'As a group we have brainstormed how we think a lot of our learning is done online, instead of in a workbook. We predict in 2050 that most of our school study will be done online.'* We have **explained** how we identified our user needs, the technologies we will use and new opportunities for our design solution. *For example, 'We are going to design a learning and workspace for student and adult study. We used the experience of one of our team member's daily train travel as inspiration. We will 3D print the desk and seating we design. We will make a model of the area on the train where the study/work space will be, as well as a digital poster showing the study area on the train. Our design for work areas will make travelling by train more productive for students and commuters.'*		Our team **researched**, **analysed** and **evaluated** end-user needs. *For example, 'Our team surveyed 50 students from our school who have travelled by train. Having a space to study was one of their top needs. We interviewed 5 students to make a list of their specific needs. We also conducted research online and found that ...% of workers travelling by train in Victoria would like somewhere to work that is more comfortable.'* We have **researched** and **evaluated** different influences on the ways people work such as technological change and predicts changes to work in future. *For example '...% of learning is now done online Instead of a workbook. We predict this will be close to 80% by 2050, as online tutorials can help us learn at our own pace. Our online research into the future of schooling suggests that utilising public transport for study will be increasingly important as we study anywhere and anytime.'* We have **evaluated** how we identified user needs, choices of technologies and new opportunities for their design solution. *For example, 'Our user's needs were identified by using our own experience, then surveying and interviewing other students and researching online. We have chosen 3D printing for our seating furniture because it is precise and quick to produce prototypes. We also want to design the work area from cardboard so that we can see how much space we need and try different layouts. We are thinking that making a digital poster will also help the user get a feel for the space we are designing. Our design for work areas will make travelling by train more productive for students and commuters, which means more time to catch up with friends and family.'*
1	**2**	**3**	**4**	**5**

Ideate Teams develop a range of RRR transport ideas that would meet the needs of their users

Novice		Intermediate		Expert
Our team has **listed a few ideas** that meet some user needs. For example, *'A table that stays level, a bag locker and a charger.'* We have **researched** other possible designs. For example, *'Online images of different furniture online.'*		Our team listed **several ideas** that meet the needs of our user, then selected the most suitable ideas. For example, *'We made a list of 15 different ideas. Our best ones were a table that stays level, a rotating seat, a light, a bag locker and a charger. We drew some pictures of our ideas.'* We have researched other possible designs and used these **to improve** our design. For example, *'We created a folder of different design ideas through online research, as well as different sketches of our changing design ideas.'*		Our team listed and sketched **many different ideas** that meet our user's needs. We used a process to select the most suitable ideas. For example, *'We made a list of 30 different ideas. We organised our ideas based on what we thought were essential to the user, what were practical to build and really creative ideas. We drew some pictures of our favourite ideas and showed them to other people for feedback. Our best ones were a table that stays level, a rotating seat, a light, a bag locker and a charger. And the best part is it can fold back into the wall when it is not being used, as it faces the window!'* We have combined ideas and images from a range of researched sources and from nature **to improve** the design **and create** new designs. For example, *'We collected many different images of furniture, work spaces and data such as the comments from our surveys and online searches. We also looked at designs in nature, such as the way that bats fold their wings, to help get ideas for our foldout furniture. We created files based on our different ideas and documented how our ideas changed over time.'*
1	2	3	4	5

Prototype Teams create a prototype of their RRR design solution

Novice		Intermediate		Expert
Our team **safely** used technologies and materials to produce a prototype For example, *'We used a safety knife to cut cardboard and a glue gun with help from our teacher.'* We used digital technologies to present the solution to the user problem. For example, *'We drew a basic design on Tinker CAD.'*		Our team **safely and independently** used technologies and materials to produce a **quality** prototype. For example, *"We created an STL file and used a 3D printer with help from our teacher. We used a safety knife to cut cardboard and a glue gun.'* We used **different features** of digital technologies to present the solution to the user problem including descriptions of size and materials. For example, *'We made a digital poster of the study area to show the scale and space required. The poster had annotations showing the measurements of the furniture and space as well the planned materials to make it."*		Our team **safely**, **independently and innovatively** used technologies and materials to produce a **high-quality** prototype and thought of ways to reduce waste or time. For example, *'We asked our teacher to show us how to create an STL file and 3D print our first prototype. We then created the next prototypes on our own. We used a safety knife to cut cardboard and a glue gun. We found ways to save print time by reducing the density of our 3D print and we used recycled cardboard for our model.'* We incorporated **a range of different features** of digital technologies to present the solution to the user problem, including impacts and limitations using appropriate language to **engage** a specific audience. For example, *'We made a digital poster of the study area to show the scale and space required. The audience could click on parts of the image which linked to a new page with the design specifications showing the measurements of the furniture and space as well the planned materials to make it'*
1	2	3	4	5

Communicate Teams create a video pitch to promote their RRR design solution

Novice	Intermediate	Expert
Our team presented a pitch video using **a media feature.** For example, *'We included an image of our 3D furniture in the cardboard model of the study area on the train.'* Our video **presents** the user needs and our choice of technologies and materials for the designed solution. For example, *'We described how it feels to not have a practical space for working on the train and how our study space solves the problem using furniture and digital connectivity such as power and Wi-Fi.'*	Our team presented a pitch video using one or two media features to **convey meaning and enhance** the pitch presentation. For example, *'We included images of the interior of a train to show how impractical it is to study. We Included an image of our poster during the video to show the planned space of our study area. We also recorded our voice over the images, so it wouldn't be silent'* Our video **explains** how we identified our user's needs, the choice of technologies, the input of the individuals in the group and new opportunities for the designed solution. For example, *'We wrote a script before filming and made sure that we had explained all the required parts of the project brief. We made sure everyone was involved in the preparation, presentation or editing of the video.'*	Our team presented a pitch video that creatively utilises **multiple production and editing features** such as camera angle, framing, colour filters, text and sound to effectively **convey meaning and enhance** the pitch presentation. For example, *'We received permission to film the interior of an empty train to show how impractical it is to study. We included an image of our digital poster during the video to show the planned space of our study area and filmed ourselves using a green screen so that we could show how we would use the study area on the train. We used editing of sound, framing, transitions and close-ups to make our video interesting to view.'* In our video, we **evaluate** how we identified user needs, the specific input of the individuals in the group, opportunities for their designed solution and how technologies and materials influenced their design. For example, *'In our video, we discuss what went well and what didn't go to plan in the different stages of our design. We carefully refined our script before filming so that the audience felt empathy for our user and understood how we collected and analysed data to define the problem and the different ideas and prototypes we came up with before our final design. We finished by presenting the value of our solution for the future of rail travel.'*
1	**2**	**3**	**4**	**5**

Reflect Teams reflect and evaluate on the processes used to develop their design and the effectiveness of teamwork and project management

Novice		Intermediate		Expert
Our team has **outlined** methods used to solve the user problem and improvements that could have been made. For example, *'As a team, we have listed what we did in the stages of the Design Thinking Process to solve the user problem and how more research would have made the design better. '* We have **described** how we worked as a team and followed instructions for collaborative group work. For example, *'Each member of our team had a role to complete the instructed tasks.'*		Our team **described** the effectiveness of methods used to solve the user problem and **explored** different improvements to be made. For example, *'As a team, we have described what we did in some of the stages of the Design Thinking Process to solve the user problem. We have discussed what went well, such as our processes for collecting ideas and the digital poster, and where improvements could be made, such as sharing the workload in making the prototypes.'* We have **given examples** of our teamwork and how our project followed timelines and sequences for completing tasks on time with assistance. For example, *'We have explained the roles of each of our members, such as the researchers and the film producer. We outlined how the different tasks were completed for each stage of the Design Thinking Process with help.'*		Our team **evaluated** the effectiveness of methods used to solve the user problem with evidence such as test data and **investigated** different improvements to be made. For example, *'As a team, we have evaluated what we did in each of the stages of the Design Thinking Process to solve the user problem. We have discussed what went well using data from our tests and where improvements could be made, and we have planned for future iterations for our prototype. We have included comments from students who tested our prototype and how we used feedback for our redesigned solution as well as further improvements needed.'* We have **given examples** of our teamwork and how our project followed timelines and sequences for completing tasks **independently**. For example, *'We have evaluated the roles of each of our members and the way that we managed our project and strategies we used without relying on our teacher for help. We have discussed how we each completed our individual tasks for each stage of the Design Thinking Process with examples and how we might improve on our teamwork and leadership in future projects.'*
1	**2**	**3**	**4**	**5**