



Lessons Learned



Background

The 14th World Rogaining Championships 2016 (14WRC2016) were considered highly successful by any measure. Their success was driven by grand vision and obsessive attention to detail and they offered a lot of lessons for anyone wishing to organise a future WRC in Australia. It is likely to be ten, and possibly up to 20, years before we see another WRC here which means that few, if any, of the key 14WRC2016 organising team will be involved in organising the next WRC hosted by the ARA. This document is intended to record the key lessons learned from 14WRC2016 that may be applicable to future WRCs organised in Australia.

Disclaimer

Every rogaine is different in terms of location and terrain. This event was in a very remote area with very few services available. As such it required a much higher level of pre-planning for materials, equipment and consumables than might be required in most locations. It also required the event to install a range of infrastructure that would not be required in many locations as suitable existing infrastructure would be available. Thus, a number of the lessons noted herein may not be applicable to the location of future ARA hosted WRCs.

Organisational Structure

In contrast to the three previous WRCs that were held in Australia, all of which were hosted by a single ARA affiliated State Rogaining Association, 14WRC2016 was hosted by the ARA with responsibility for different aspects of the event allocated to individual State Rogaining Associations. The process used was that the event management was divided up into a logical set of responsibilities and States asked to nominate the aspects they would like to take on. The only deviation from this was WARA being directly approached to take responsibility for the Hash House and catering due to their well-known expertise and capability in this area.

For the record the following aspects were allocated to specific individuals who had been nominated in the proposal to the IRF for the ARA to host 14WRC2016:

- Event Director
- Course Setting
- Vetting
- CP Site Taping, Checking & Marker Hanging
- NavLight Set-Up & Management

The following aspects were allocated to State Associations:

- Website Set-Up & Management
- Entry Process Management
- Site & Equipment Management
- Competitor Transport Management (buses)
- Catering
- Merchandise
- Marketing
- Awards

- Sponsorship
- Treasury
- Volunteer Coordination

This breakdown worked well for this event but may not be appropriate for future WRCs.

Things That Went Well

The following are items that worked well and consideration should be given to replicating and building upon them for future ARA hosted WRCs.

Event Location

The event site was “earmarked” as a future WRC site very soon after the 2007 ARC. It was considered to be superb rogaining terrain that showcased spectacular and quintessentially Australian terrain and had excellent accessibility and available Admin/Hash House infrastructure.

It is recommended that the ARA looks to identify suitable WRC areas up to ten years and certainly at least five years ahead of any potential ARA hosted WRC. Note that there was significant debate in the IRF Council at the time of the selection of the 14WRC2016 host that the proposed area may be unsuitable because the WRC would be held only nine years after part of the area was used for an ARC. Thus, identifying a WRC site well ahead of time and quarantining it from use for rogaining and other navigation sports will assist in making a successful bid to host a WRC.

Core Team Experience

The specific individuals nominated in the proposal as the core team had, at the time of the bid, collectively participated in over 500 rogaines including over 100 Championship rogaines, ~30 WRCs, and had collectively organised/set/vet over 50 rogaines including at least 20 Championships. Between the time of bid and the date of 14WRC2016 they collectively participated in a further 50+ rogaines including 12 WRCs.

This wealth of experience gave the team a huge bank of knowledge and precedent to draw on when planning the event.

Management Documents & Processes

When the event management team was first assembled, over 2½ years before the event, a documented Event Plan was developed and made available in a dropbox accessible to all team members. This plan formed the basis of the event management from then on and was regularly updated. An event budget was similarly developed and progressively updated and the dropbox was used to share a large range of documents relevant to multiple team members.

Concurrent with the commencement of development of Event Plan, the management team started to have regular hook-ups using Skype. This both allowed the team to easily share data and updates and gave team members a date to focus on for delivery of their various intermediate commitments. The hook-ups were generally 60-90 minutes and initially were every 2-3 months or timed to meet specific deadlines in the event planning schedule. As we got closer to the event date these hook-ups tended to become more frequent. During these meetings shared Google documents of agenda items and recorded action items were effective in maintaining team focus. In addition to the full team hook-ups there were many smaller group phone or Skype discussions focused on specific aspects of the event management. The process generally worked well.

Approximately six months out from the event a very detailed and extensive management plan for the final six months and the event itself was developed. Allied with this plan was a detailed action list that set out all required actions including the responsible action officer and due date. These documents were all reviewed by the full team and amended as appropriate then committed to by the team. This ensured that the detail of the plan was understood and agreed and progress able to be easily tracked.

It is strongly recommended that future WRCs adopt similar processes.

Map

The original proposal had been to extend the 2007 ARC map using the NT Government mapping data that had been borrowed to make that map. The first course setting trip, June 2014, identified that the 2007 ARC map was well below the standard required for the event. Around the same time it was identified that the NT Government were unable to locate the required mapping data.

As a result it was decided to remap the area using state-of-the-art large format digital mapping camera technology. Through industry contacts of the Event Director, an in-kind sponsorship was obtained from Aerometrex which allowed this to be done at cost resulting in considerable savings from market rates. Whilst converting this data into the final map took many hundreds of hours of volunteer time it meant that the final product was of superb quality. Any future WRC should seriously consider this approach also.

Event Director

The Event Director was retired from the full-time workforce which allowed them to dedicate significant time to the management of the event. It was also helpful that they had extensive management experience in industry including management of major projects, commercial management and working at the political level.

Site Infrastructure

As noted above the available infrastructure was a key criteria in selecting the event site. In addition to the accommodation noted below the event site included:

- A 10m x 30m conference hall complete with a commercial kitchen
- Seven male and seven female toilets
- Seven male and seven female showers
- A small laundry
- A large covered "band stand"
- Several other shelters

Even with this available infrastructure there was a requirement to supplement it with significant additional facilities, particularly:

- A large (10m x 30m) marquee with tables and chairs
- Freezers and refrigerators
- Toilets & showers
- Cooking facilities

The site had the capacity to accommodate over 1,000 people camping, including 32 powered sites, and a further 140 in cabins and the bunkhouse. Plus it was only 60 minutes' drive from Alice Springs where there were myriad accommodation options. A significant number of competitors chose to stay in accommodation in Alice Springs on the night before the event. All the onsite accommodation was booked out within a few weeks of entries opening.

It is recommended that the ARA does not attempt to host a WRC at a location without significant permanent infrastructure. The 2012, 2013 and 2014 WRCs all did this and all suffered in certain ways as a result.

NavLight Punch Deployment

Checkpoints close to the Start/Finish had either three or four NavLight punches whilst all other CPs had two punches. This ensured no risk of queues delaying teams at CPs and provided backup in case of a failure of a punch.

All punches used were the rechargeable type. All were fully charged well ahead of the event, then left for several weeks off charge and then tested for charge. Any that showed a significant loss of charge was discarded and the remainder then placed on charge again until they were taken to the site 7-10 days ahead of the event.

Punches had the relevant CP N^o written on a piece of tape attached to the punch body. The punches for each CP were then placed into a small zip-lok bag along with a laminated N^o which was subsequently attached to the CP marker upon deployment. These were then placed in larger zip-lok bags in groups suitable for one day's deployment by a single team.

Checkpoint Marking and Marker Deployment

The process used to mark CP sites in the field was extremely robust. It is summarised as follows:

1. A setting team of two people used the map only to identify the site. They then deployed a; corflute disc attached by wire, a generous length of flagging tape and a piece of coloured electrical tape
2. A checking team of two people then confirmed the location of the CP site using the map only
3. A vetting team of two people then verified the location of the CP site using the map only
4. Each team took a GPS way point at the CP site and tracked their full route using GPS
5. The CP circles were positioned using the way point data and any necessary map adjustments made to ensure the circles were correct on the map as well as being georeferenced
6. In some cases the GPS tracks were also used to assist to make map corrections
7. Each CP marker hanging team of two had copies of the final competition map and a georeferenced copy of the map on *PDF Maps* on smartphones
8. The CP marker hanging team navigated to the CP location using the competition map and verified that one or more of the setting marks were in position. They then verified the location and CP No by GPS on *PDF Maps*
9. When the marker and NavLight punches were deployed and all setting marks removed the hanging team then took photographs of the deployed marker from several directions and each member of the team "punched" each of the NavLight punches on a NavLight tag they each carried
10. The Course Setter later downloaded the NavLight tags carried by each CP marker hanging team member and checked the photographs to confirm that the markers and punches were correctly deployed

This process provided great certainty that all CP markers were correctly deployed and is recommended for future WRCs.

Site Administration

A competent and experienced site administration manager was recruited into the team and arrived at the site a week before the event. She then managed and supervised all on site administrative tasks through until following the event.

Having a full time and highly competent individual managing and personally supervising all aspects of administration on site was a foundation of success in this area. It was also very useful that the individual recruited was fluent in Russian, a language spoken by most attendees who could not speak English.

As will be noted in the Opportunities for Improvement not having continuity of administration management from start to finish of the organising process was less than ideal.

Visas

Links to all relevant data on the DFAT website for overseas visitors requiring Visas was placed on the event website as soon as it was established. The four other things that were done in this area that are recommended for any future WRC are as follows:

- One single individual in the management team took responsibility for all Visa issues and turned around all Invitation letter requests within 24 hours
- The event registered with DFAT as a major international event so that any requests that came to DFAT from Entrants would be directed immediately to the event
- A specific individual who was dealing with Visa requests within the Australian High Commission in London was identified and “recruited” as a supporter of the event. Urgent matters were then able to be dealt with at a personal level
- All Entrants from countries known to require Visas that had not sought Invitation letters six months out from the event were emailed and asked if they required such letters. Close to 100% of these people responded that they did so require such letters

Safety Management

The event had a comprehensive and fully documented Safety Plan prepared by an individual highly experienced in managing safety for a rogaine. Key elements recommended for future WRCs include:

- Prepare the Safety Plan well in advance and get it reviewed by a range of people with intimate knowledge of the event and event area
- Engage with the local Emergency Services well ahead of time – Suggest at least one year to ensure they are prepared and bought into the plan
- Have a doctor with emergency medicine experience on site
- Have a suitable ambulance (4WD was required for this event) and paramedics on site
- Have communications coverage across the entire event area – VHF radios were used in this case and were ideal but the mobile phone network may be suitable in some areas
- Conduct continuous safety patrols by vehicles dedicated to that purpose
- Nominate all Water Points as Emergency Muster Points and have them manned throughout the event
- Issuing all Entrants and Volunteers with an elastic “snake” bandage and emergency blanket and making these compulsory equipment – Having this supplied by a sponsor was a bonus

Water Management

There were eight Water Points all equipped with a 1,000 litre IBC. These were all 100% full at the start of the event. All Water Points were manned throughout the event and had radio communications with each other and back to Admin and Safety Control. The water dispensing required custom fittings to be developed with dual nozzles to reduce possible congestion at peak times. A dedicated travelling water carrier was always available to top up any Water Point requiring it and no Water Point was ever permitted to drop below 50% full.

This approach is strongly recommended even in less arid and more easily accessible areas.

Map Quality

The final event map was offset printed on 167gsm Teslin waterproof paper. The Model event map was laser printed on 167gsm Teslin. Teslin was chosen for the following reasons:

- Proven product
- Mat finish suitable for use of distance measuring wheels and with good “hand feel”
- Able to be written on with a variety of media including highlighter, pencil, ball point pen and permanent marker without running or easily rubbing off
- Very robust – No need to cover the map for protection

The maps proved to be very robust and this combination is recommended.

As will be noted in the Opportunities for Improvement the process for map stock procurement and arranging printing had some challenges.

Catering

As noted previously WARA was assigned the responsibility for catering and did a brilliant job. They prepared and implemented a very detailed management plan and a very detailed catering manual to guide the volunteers.

The recommendation is to ensure that the catering is being managed by an individual or group who is highly experienced and highly organised in this area.

Equipment Management

Again this was an area that went very well and was extremely well managed. It was a potentially very challenging item due to the remoteness of the site and the lack of services supplies available locally. Keys to success include:

- Planning the requirements well ahead
- Ordering all hire and purchase items many months in advance
- Hiring a large (10m x 30m) marquee and table & chairs for map prep/planning and eating
- Purchasing many minor items rather than hiring – Deal done to be able to return unopened items for refund. Also gave residual benefit to the State Associations and local charities who finished up with some of the items
- Use of temporary urinals draining to a dug hole using plastic sheeting and stuff from the dump
- Use of temporary cold water showers through purchase of individual tent cubicles and shower stands. Very cost effective and quick to erect
- Careful planning of loads coming to/from site so that very few trucks were required and they were always full
- Availability of a volunteer with plenty of storage space in Alice Springs to ship materials and equipment to in the months leading up to the event
- Having a good number of free standing bollards plus plenty of flag rope available. This allowed: corrals, chutes, OOB areas etc to be quickly established and removed. Star pickets were not able to be used in many areas of the site due to shallow underground services and/or hardstand surfaces
- Establishing a central equipment store on site – Everyone knew where to look for stuff and return stuff to
- Hiring a quality portable PA system. It was able to be moved by three people but was suitable for the crowd of nearly 1,000.

Sponsorship

Sponsorship was a key success factor for the event. In particular the sponsorship provided by the NT Government, Qantas and Aerometrex. The support from Paddy Pallin and the event merchandise providers was also extremely valuable.

The key to getting the NT Government support was dealing with them ahead of making the original proposal and getting their formal backing for that proposal. This proved sufficiently powerful that despite a total change in political leadership in the Territory just after the bid was submitted we were ultimately able to get financial support from them.

Refund Policy

The Entrant limit for the event was set at 800 for a range of reasons including:

- Ensuring that the event area was not so “crowded” that Entrants failed to get the true roganing experience and navigational challenge
- To avoid overloading the available infrastructure
- To encourage people to enter and pay early to improve financial certainty and cash flow

In the lead-up to the event there was considered some likelihood that this Entrant limit might be exceeded. Thus there was concern that if significant refunds of entry fees were available people would simply “bank” an entry without committing to attending the event. As the base cost of running the event was always going to be very high and there were significant upfront sunk costs in the years leading up to the event to cover course setting, map data, etc it was very important to get early revenue and lock it in. Thus, in addition to a strong marketing campaign, a relatively harsh refund policy was established being:

- Pay in full within 2 weeks of entry being accepted
- 50% refund up until six months before the event
- 25% refund up until three months before the event
- No refund thereafter

This approach worked very well and was accepted without any significant complaint. It led to nearly 100 more people paying than actually competing. Some later refunds were made in cases of genuine hardship. Also, for pragmatic reasons unpaid entries were kept in the system for up to three months before being expired.

Volunteers

Volunteers are the lifeblood of any rogaine and this one needed at least 80 volunteers on site at the event in order to function. In the end we had in excess of 100 volunteers at the event with probably a further 20 people who had made a voluntary contribution to the event without actually attending the site and a further similar number who both volunteered and competed. Key elements to the success of the volunteer programme included:

- Establishing very early, at least 18 months out, what volunteers would receive and what they would be required to self-fund and publishing this on the website
- Establishing concurrently a Volunteers registration process on the website
- Heavily promoting the event as a great opportunity for Volunteers to have a holiday and be part of a WRC in a beautiful place
- Developing a Volunteer roster, minus names, for all required duties over six months out
- Regularly canvassing registered volunteers to take on some key tasks, manning water stations in particular
- Having a dedicated Volunteer Coordinator who placed names on the roster by matching tasks to requests and contacting every volunteer individually and personally to ensure they were okay with their allocated task(s)
- Leaders of volunteer teams ensured volunteers were well trained in the tasks assigned

Promotion

Allied with the limit on Entrant numbers, to attract early entry was a strong promotion campaign about the event and how to pre-qualify and enter. This was commenced in Australia/New Zealand at least six months before entries opened and in other rogaing countries soon after. It included promotional data in the Russian language.

While the focus on pre-qualification and entry is important in the lead-up to and during the first few weeks of the entry process, there was a trailing misconception that pre-qualification was required to enter the event, even when that was no longer the case. This perceived barrier to entry may have deterred a number of people from entering, but evidence is anecdotal at best.

Merchandise

The availability of high quality event specific merchandise plus event website based and at event sales of gaiters and compasses proved to be a very profitable delivering a margin of ~\$10,000- or 35% of total merchandise revenue.

Perpetual Trophy Management

The approach adopted for this event led to all perpetual trophies being available at a WRC for the first time for quite some years and is recommended for future WRCs. The process used was:

- Obtain a list of all perpetual trophy holders and their email contacts from the Event Director for the prior WRC immediately following that event
- Within one month of entries for the event opening (ie at least eight months before the event) email all holders asking them to advise how they intended to ensure the trophies would be at the event
- If no response received within one month email them again, individually this time, and copy the email to an IRF Councillor from the holder's country and seek their support
- Help to facilitate transport of the trophies. In one case six of the trophies were assembled together by the 2015 WRC Event Director and mailed to Alice Springs. In another case two trophies were assembled by an IRF Councillor and handed to the Event Director when they met in Europe two months before the event
- If a non-holder was nominated to hand carry a trophy they were emailed immediately to confirm they were aware and agreeable
- Two months out from the event all nominated carriers, holders and non-holders, were again emailed to confirm arrangements. Again local IRF Councillors were used for support as required
- All emails were persistently followed up until confirmation was provided

Bus Transport

The bus company engaged to provide scheduled services to and from the event site was very easy to work with, and were happy to charge only for seats sold and manage capacity on our behalf. This reduced the risk and administration on the event significantly.

Grocery and Fuel Orders

More a proof of concept driven by the specific logistics of this event than a suggested standard offering, bus passengers were offered the option of having an online grocery order received on their behalf at the airport ready for their arrival so they could then go direct to the event site on the next bus with more time for preparation, rather than spending hours going into Alice Springs to shop. A small number of teams took up the option which worked very well. The details were worked out in advance with a local supermarket and information provided to the teams to place their orders. Stove fuel was also offered and purchased from a local outdoor shop and made available at the event site. Some teams did not pay for the fuel bought for them – if this were to be done in the future, it would be better as part of the extras ordering system.

Model course

The organising team felt it was important to provide an opportunity for competitors to experience for themselves the terrain and vegetation prior to the competition. A model map area was provided adjacent to the event map and approximately 10 km from Hash House with 21 checkpoints (closer spacing than on the event course) demonstrating typical checkpoint locations and with some longer legs for examples of typical navigation. Many competitors favourably received this. The course was available for three days and two nights prior to the event and the map placed on the website two weeks beforehand. Maps were printed on Teslin paper, the same as the competition map, and made available at no charge. A shuttle bus service (free of charge) was offered to competitors from the Hash House to the model event site to allow competitors who had used event buses to get to the Hash House to access the model event.

Photo Display Map

One innovation that was unashamedly borrowed from the 2015 WRC was the preparation and display of a large scale (double competition map size) version of the competition map without CPs but with a series of photographs from the different areas and terrain types in the competition area. Each photo was placed over

the map adjacent to the area shown in the photo but in such a way so as not to obscure the map detail of that area. The location from where the photo was taken together with the direction of the view was shown for each photo. This map went on display around the Hash House and Admin area 24 hours before competition map handout.

This photo display map together with the Model Event was of great assistance in ensuring that all competitors had a good understanding of the competition terrain and assisted to reduce the perceived advantage of people who had some pre-existing familiarity with the area, such as those who had competed in the 2007 ARC. This approach is recommended for future WRCs also.

All Night Café

The Hash House was located close to one edge of the competition map area. As such, it was decided that an All Night Café would be used to provide teams who wished to stay out all night an option to get some hot food and drink. Most Australasian teams were familiar with the concept but teams from other parts of the world were not. This proved to be a popular addition, but caught the organising team short on how popular it was.

Competitor Bulletins

As is standard for WRCs, a number of competitor bulletins were issued prior to the event. Particular attention was given early and often to specific hazards of the course including Spinifex and rocky terrain to allow competitors plenty of time to prepare. The final bulletin that contained much of the fine detail necessary for competitors to get to the event, register and what to expect for the event was compiled from notes over the preceding 2½ years. Course setters' notes were also prepared to provide additional detail.

Electronic Tag Wristbands

The 2015 WRC in Finland used custom made fabric wristbands with a plastic closure backed by a metal crimped sleeve to secure the electronic tags to competitors' wrists. These proved extremely robust and essentially impossible to duplicate and thus permit cheating. An Australian supplier for these was found at a cost of ~\$1.00/band. There were no broken wristbands reported or tags lost. Similar fabric wristbands are recommended for all future championship rogaines.

Map Hand Out

The map and course information handout for the ~350 teams was achieved in under four minutes using the following approach:

- Sets of maps and other course data was pre-rolled into bundles of two (for 2-person teams) and one (for teams with a third member)
- Lanes were set up with blocks of team Nos such that not more than 50 teams would use any single lane
- One official with two helpers was assigned to each lane
- One representative from each team showed the official their Team No and was handed one or two rolls by the helpers and moved on

It is recommended this technique is adopted for all rogaines with large number of teams.

Finish process

After 11AM, as each team finished the event they were directed into a number of lanes (up to 6 at peak time). Their tags were cut off by an official and placed together in a Zip-lok bag that was marked with the team number. This bagging and marking allowed for relatively easy later retrieval of team tags which proved necessary. The tags were handed between volunteers while each team was funnelled through a chute as volunteers read the tags, then deposited them in a safe location and handed each team their tag printout for immediate review. The chute then directed teams past the bagged device unsealing and check-out point

before teams were free to go. This flow was very effective in ensuring that teams were processed consistently and efficiently.

Competitor expectations

Nearly all competitors had a good to fantastic experience at the event. We believe this is in part due to the stunning location and in part due to the event management team setting competitor expectations early and clearly. Competitors were told to expect a navigationally fair but challenging course, Spinifex, hard rocky surfaces etc. As such, they were prepared for this and were able to focus their attention to other elements of the rogaie.

Opportunities for Improvement

There were also a number of items that fell well short of the desired level of performance and which should be considered for adoption of a different approach for any future WRC in Australia.

Administrative IT System Fragmentation

There were a large number of administrative processes that needed to be handled over the life of the event, and a number of needs and complexities did not become apparent for some time or developed as time went on. Some of the systems had very limited access and little adaptability resulting in information silos, often reliant on very few people who understood those system components. This was very inefficient and frustrating for some team members because they regularly had to ask others to retrieve and provide data that they should have been able to source for themselves. Given the reliance of an event like this on IT systems a repeat of this situation should be avoided.

Entry and Ordering System

The decision to modify an existing State association entry system (MASS) to manage all the entries, merchandise, accommodation, bus transport etc was probably the single largest error of judgement by the team in setting up the event. Whilst the decision was taken with all the best of intentions and with a view to keeping costs at a minimum it materially increased the volunteer workload, led to a number of major errors and need for manual reworking and, given this system was our primary interface with the Entrants and Volunteers, created an impression with some that the event was not being well managed.

The system had many shortcomings including:

- The initially proposed registration process was totally unworkable. Thus the initial capturing of information about the 2 or 3 team members, plus the specifics of pre-qualifying information had to be implemented in the space of the week immediately prior to entries opening using Google forms. This ultimately proved very effective and evolved to become the team registration system with the original system then reduced to the role of payment and extras ordering. The facility within Google sheets to create spreadsheet reports and optionally publish them embedded within web pages allowed team lists and summary reports to dynamically update as entries and payments were received. It was able to regularly pull payment reports from MASS to maintain current information. Even once the need for the pre-qualifying information had passed, the same data was able to be easily used in the month before the event to create a “form guide” generating interest in the event.
- Ad-hoc orders for merchandise and other extras were a major problem. Orders could only be placed by teams entered in the event. An attempt was made to work around this by creating a separate “volunteer event” in MASS and manually adding volunteers to that event in “teams” grouped by family, however this was only partially successful. Some of ad-hoc orders were handled by teams ordering items on behalf of volunteers or others but this caused unnecessary confusion.
- Extras ordering was counter-intuitive and unlike a typical online ordering system. Each team had a single persistent “shopping cart” that recorded their ordered extras. This became complicated as there was no way of telling which team member had ordered any given item, and in some cases

another team member would inadvertently delete items which destroyed any record of their previous existence. Many users of the system were confused by the persistent shopping cart model and some deleted items thinking they were already paid for so no longer required to be in the cart if additional items were being ordered.

- Extras ordering system access: each team shared a single shopping cart, however the team was initially registered by one member, including an access password to be used to login at any time to update extras orders. Login was by a “member number” which was an internal identifier in the system. Theoretically e-mail address could also be used, but only if it was unique, and a significant number of people shared the same e-mail. Fortunately the cleartext password was stored in the registration system and while from a security perspective that is poor practice it was not protecting any overly sensitive information. The MASS system password reset request was not automated, instead resulting in an email to a volunteer to contact the requestor. After the first e-mail newsletter inviting teams to order merchandise before an upcoming deadline resulted in a spate of requests for passwords, the necessary personalised login information was included in a follow-up newsletter and all similar communications.
- Extras item ordering cutoff deadlines required some extras to be removed as orderable items once the deadline for orders had past. When a deadline expired, a report was generated of all ordered items which was then used to order from suppliers. The problem then arose that teams could delete items that could no longer be ordered, even though those items were being sourced from a supplier (e.g. T-shirts). The developer of the system ultimately implemented locking out of item removal if the item could no longer be ordered.
- Payment and refund issues: there were two means of payment available in the system – BPAY and Paypal. BPAY could only be used by Australian customers and had a fixed transaction cost, while Paypal could be used by anyone with a credit card, but had a percentage transaction cost. A decision was made to restrict Australian customers to BPAY only to reduce transaction cost overheads. This exposed a number of limitations of BPAY – it takes several days for a transaction to be processed, there is no refund mechanism, and it emerged that there was both a minimum (\$10) and maximum (\$1000) transaction size, both limits impacted some customers. For payments over \$1000 in total, 2 payments were required, but inevitably there was someone with an order for \$1005 who paid \$1000 and was then unable to pay the remaining \$5! Eventually the system was modified so that Australian customers were offered the option of Paypal if the transaction size was below \$200. Where a refund needed to be made to an Australian customer, bank details needed to be obtained and a bank transfer done. This resulted in a considerable amount of additional work.
- Extras preference interface issues: a major defect of the user interface was not identified for many weeks – the defect was that customers using Internet Explorer to purchase extras were presented with preference options for all extras not just the selected item, and furthermore if they succeeded in choosing a preference from a non-matching item then the system would record the description of one option but the price of the other. Unfortunately some items such as long and short sleeved T-shirts had identical preferences (size), but different prices. Eventually the system defect was fixed, however the incorrect information then had to be manually checked by contacting every team that ordered such items and remediating. This resulted in a huge amount of work which was undertaken by volunteers who were not responsible for that part of the event operations. It also caused issues with cabins which were in very limited supply resulting in overbooking and the need to contact teams and cancel their booking, causing several teams to withdraw from the event and damaging goodwill.
- Incorrect extras preference configuration: several extras items did not have correct preference information configured when orders were opened, for example T-shirts and gender-specific sizing. Again, this resulted in significant rework and manual checking and remediation with each team.
- Complex and manual synchronisation processes: for registered teams there were 3 primary systems that needed to be kept in sync – the registration system (Google docs), the payment and extras

system (MASS) and the e-mail newsletter system (Mailchimp). When teams changed a member, or even personal details such as email address changed, each system needed to be manually updated.

It is strongly recommended that any future WRC in Australia use more flexible and integrated systems developed and well tested well in advance in to manage this process. Commercial providers may be an option, however a number of the capabilities are quite unique so there is no clear best option. Flexible reporting options and ease of access to data by the event management team are key considerations. The systems need to relieve volunteer burden rather than increase it, as well as maximise the professional look of the event.

Land Access

The event believed that all required land access was resolved ahead of the proposal being submitted to the IRF. Approximately 12 months out from the event it was decided that it would be appropriate to gain traditional owner (TO) approval for the event notwithstanding that we had been told by two different NT Government bodies that this was not required. Less than five months out from the event we were advised that TO approval was in fact a legal requirement and we had to scramble to achieve it in time.

The lesson is to ask, ask and ask again and try to get all advice in writing, something we were unable to do. Also, seek TO approval even if informal and not legally required and commence that process at least two years ahead of the event.

Administration Management

The management of the administration processes for the event was spread amongst several volunteers none of whom were available to act as the Admin Manager on site over the ten days around the event itself. This put extra load on others in the team and led to some level of fragmentation and frustration.

For any future WRC in Australia it is strongly recommended that a single individual who has the requisite capacity, experience and time availability be identified to take full responsibility for all Administration matters from the time of commencement of planning for the event until the event is completed and all reports finished. This should include managing all administration on site leading up, during and following the event.

Map Printing

A decision was taken in the very early days that our preferred map material was Teslin waterproof paper. Input was sought from a roganier very experienced in the printing of roganier maps on Teslin and the required paper stock sourced six months ahead of the event together with a quote for printing the maps on that stock. When it came time to do the printing the printer decided they were not prepared to print the map on the Teslin stock we had. This was partly due to the large size of the map (895x590mm) and the inexperience of the map maker resulting in a number of questions around the printing process.

Ultimately, after enormous amounts of stress, we were able to source a printer who did an excellent job printing on the Teslin stock we had. However one key learning was that printers generally make money by selling paper, not so much by doing printing.

It is recommended that for future WRCs a printer be competitively sourced up to a year out from the event and the event works with that printer to source the appropriate paper stock and undertake the printing.

Equipment & Logistics

Whilst in general the equipment and logistics work well there are a couple of areas that could be improved.

The "portaloo" type toilets tended to fill up quicker than had been expected, probably because people found them more convenient to use. We had not allowed for any pump-out of these over the course of the event weekend and we progressively closed them off as they filled. This situation was caused in large part by the number of competitors who arrived on the Thursday. The event management team had no visibility of this

ahead of time and had not allowed for such a large, early influx. As it turned out they just lasted the distance but future events should consider temporary pit toilets as a first option if the landowner allows this or otherwise allow for a pump out of all toilets just after the event starts.

We regularly overloaded some electrical circuits despite a fairly careful design and planning effort into calculating the power load in each area to set up the Hash House and Admin areas and the power supply accordingly. This was largely constrained by the available power circuits and their unsuitable layout in the building, and also the poor availability of gas appliances for hire.

Catering

We grossly under-estimated the number of teams that would use the All-Night Café (ANC) and particularly that many teams would plan a loop out of the ANC and thus visit it twice. This meant that the food supply and the volunteer allocation for the ANC was insufficient with it needing to be resupplied twice during the event. The responsibility for this lies squarely with the Event Director, not the catering manager. The catering manager had no knowledge of the course design.

The lesson is that in a WRC more teams will generally stay out longer and go harder than might be the case in other rogaines. We had taken full account of this with the water management plan but failed to plan effectively for the load on the ANC.

NavLight Setup Issues

It was realised before the first punches were hung that the time in each punch was incorrect due to the event being conducted in a different time zone. An attempt was made to rectify this, however the timestamps on punches ended up being 1 hour wrong which caused some confusion on final tag printouts, but had no impact on team scores. Once the error was realised, all administrative punches were synchronized with the correct time which was critical for getting accurate finish times and scoring.

Team Registration Administrative Complexity

With nearly 700 people entered in the event, and a number of items that needed to be coordinated, a few poorly managed late changes had the potential to cause chaos if processes were not in place to catch them. In addition to merchandise and sponsor data the following items needed to be managed for each participant:

- Competitor number bib
- NavLight tag
- Registration bag label

The cut-off dates for producing these varied, so there were a handful of numbers printed for people who withdrew and did not then have a NavLight tag allocated. We also had a few late additions who missed the printing cutoff. A handful of NavLight tags were matched with the wrong number bib, and one person was allocated a new tag since the allocated one could not be found.

Added to this were the team changes that occurred during the course of registration, with transfer of Navlight tags and creation of new number bibs as required. A process was established to handle this in a standard fashion, but wasn't always followed.

The eventual resolution was only achieved by reading all the briefing punches that were used to check the teams into the start corral. This provided enough information to resolve the ambiguities. The use of the "Immediate Timestamp" option would have made this easier since every punch registration would then be individually timestamped, meaning that if team members chose to punch with different briefing punches there would be a much better chance of correlating. Without "Immediate Timestamps" there was a time stamp only every 7 minutes which made correlation between punches largely impossible. The data produced by the Navlight software by reading the briefing punches required considerable manipulation – reading punches is a feature of the software rarely used.

It was very important to have an accurate record of exactly which teams are on the course at any time, which tags each were carrying and deleting all the non-starters. This is critical information for event safety to be sure of accurately determining outstanding teams at the finish of the event.

Admin During Event

The admin desk was staffed throughout the event with the emergency communications and safety management located nearby. This was very effective in maintaining communication about withdrawn teams during the course of the event, and a log sheet was maintained of team numbers and notes on their status. It was anticipated that some new teams would form during the event from healthy members of withdrawn teams who were keen to spend more time on the course, and a number of spare sets of Navlight tags for teams of 2 and 3 were set up to handle that on demand. Over time arrangements were made to collect tags of withdrawing teams, but until the finish was set up on Sunday morning, no tags were read or printouts done. In hindsight this should have been done better, and resulted in some interesting moments like the discovery of the existence of a mystery box of tags, sometime after 12 noon on Sunday, for about 30 teams that had finished during the event. At least those could then just be read in as if they were finishing at the time, however many teams that finished early did not receive a tag printout. Very few of these were likely to be in contention for placings, however it should have been handled better.

It is recommended that the capacity to allow teams to “Finish” complete with a tag printout and uploading of their score and finish time into the master system be available throughout the event. In this context ote the next item regarding networking.

NavLight IT Issues

The finish setup required seven laptops to be networked together. These were sourced from several state associations and individuals. The foundation technology alone was challenging enough with the disparate collection of laptops running anything from Win7 to Win10. Configuring time zone, installing printer driver and setting up file sharing were challenging enough – the printers that had been purchased for the event did not have an installer that worked cleanly for Win10. The networking was wireless with a router located in the admin building and a wireless repeater located at the finish to ensure good signal propagation. This worked well except for a brief interruption when a power circuit tripped.

The NavLight networking code is rarely used and hence not well tested. The software developer was on hand to troubleshoot issues and warned of possible major issues if a single machine dropped out. A topology was set up with two hubs/master laptops (for redundancy) which would accumulate the full set of tag files as they were read, with remaining spoke/slave laptops connected to both hubs only to reduce the risk from a single machine failure. It was primarily due to this complexity that no tags were read until everything was set up and working ready for the final finish rush after 11AM.

This mostly worked with the odd hiccup as tags were being read at the finish, but then when the report was run of unread tags, there were ~38 teams outstanding. Once names were matched to team numbers it was clear many of these had in fact finished. The bagging of tags then showed its value. All the tags were tipped onto a wooden stage floor, and a swarm of volunteers sorted and searched and found most of the missing tags and they were read again within minutes. At this point the results were ready for preparation for presentation of winners and placings. The remaining three “unaccounted” teams were the result of poor processes at admin during the event but were tracked down within a further ten minutes, finally resolving that no search and rescue would be required.