We’re off to an exciting start for 2020. I began my two-year term as Chair of the ASQ Reliability and Risk Division on January 1. Rounding out our division’s elected officers are Tim Gaens as the Chair-Elect and Rong Pan as the Secretary. We had our first leadership meeting immediately preceding RAMS in Palm Springs, CA in January. At this year’s RAMS conference, the Reliability and Risk Division offered an 8-hour course on Practical Development and Application of Risk Management Frameworks taught by JD Solomon. Both RAMS and our course were well attended and represent the growth in training opportunities to be offered by the division in the year to come.

Our leadership team will meet again at WCQI in May and then again at the RMMR conference in August. I hope you can stop by the booth at WCQI to meet the LT in person.

And, of course, if you’re attending RMMR this year, you’ll see us around and working at the conference with plenty of opportunity to interact with us, as well as network with reliability and risk professionals in Napa, CA! Extending our training offerings this year, we are planning to offer two training courses in conjunction with RMMR, one before and one after the conference. Those details will be announced on the RMMR website (www.asqrd.org/rmmr) when complete. In addition to the conferences and training being sponsored by the division, our monthly webinars are still going strong and will continue at this pace in 2020. We’ve already held several webinars this year, including a special series on FMEA. In total, since the onset of our webinar program, we’ve held over 200 webinars, including offerings in English, Spanish and Chinese.

In publications, a call for papers is out for reliability papers in Quality Engineering. We are gathering papers for a special edition to be published later this year. This will be our third such special edition in QE. These papers, as well as those submitted to QE on a regular basis will continue to be considered for the annual Best Reliability Paper awarded annually by the division.

Chair note continued on page 2....
Chair note (continued):

We all know of changes that have occurred in ASQ with its transition to a new membership model. We are also in the beginning of the breakout of ASQE as a separate company from ASQ. ASQE will focus on certifications and organizational membership. For the most part, there should be little difference to an ASQ member. As more becomes clear, ASQ will share this with all of its membership and I will continue to share what I learn. For us, with the advent of the new membership model, our division membership more than doubled. So, it’s clear that our body of knowledge and activity hold interest with the ASQ community.

And, finally, as we go forward with all of these activities and more, consider volunteering for the division. We have numerous activities and we can add more as ideas are identified and volunteers step forward. If you have an idea or would like to discuss opportunities in the division, please send an email to: chair@asqrrd.org and we can start the conversation. I look forward to serving you as Chair of the division for the next two years.

Q1, 2020 Newsletter, Financial Report for 2019

For 2019, the ASQ Reliability and Risk Division (ASQ-RRD) received $85,904 in revenue and had total expenses of $75,982. Hence, the division had a net positive return in 2019 despite it being our inaugural year for RMMR. Both RMMR and RAMS helped with revenue, as did our courses and revenue sharing from the ASQ CRE Handbook. The revenue and expenses includes all such items from our RMMR conference, while RAMS enters our finances as a net only.

For 2020, we have a budget with projected revenue of $51,325 and projected expenses of $65,150. So, as with most years, we are projecting a net spend over revenue. However, our revenue no longer includes member dues for our division. And, had this been included at the typical range of ~$22k in the past, we would have been projecting a net positive return as usual. And, these are just projections. We have typically managed to always take in more than we spend and we will do our best to continue this financial management. Our goal is not to make money, but to spend what is needed to provide learning opportunities, content and networking for our membership.

Please send Trevor (chair@asqrrd.org) and questions regarding the division’s financial performance.
Welcome to MyASQ
As announced we will move to MyASQ with all our news and information. This is part of the ASQ transformation.

This means that from today onward we will be “live” at ASQ's MyASQ [https://my.asq.org/communities/home/182](https://my.asq.org/communities/home/182)

For the time being the website will keep on existing, but will slowly fade out. So please keep a close eye on ASQ Reliability and Risk Division on MyASQ

Webinar recordings and slides

## Upcoming ASQ RRD Webinars

1. **Date:** Thursday Mar 12, noon EDT  
   **Topic:** Geometric Dimensioning and Tolerancing (GD&T)  
   **BY:** Tec-Ease  

2. **Date:** Thursday Apr 9, noon EDT  
   **Topic:** Integrating FMEAs, FMEDAs and Fault trees  
   **BY:** Omnex  

3. **Date:** Thursday May 14, noon EDT  
   **Topic:** Organizational Culture Change: Taking the Wake-Up Call  
   **BY:** Henry J Lindborg

4. **Date:** Thursday Jun 11, noon EDT  
   **Topic:** Five Common Errors in Problem Solving  
   **BY:** Mark Galley

5. **Date:** Thursday Jul 9, noon EDT  
   **Topic:** Directed Acyclic Graphs (DAG) – The New Science of Cause and Effect  
   **BY:** Bob Stoddard

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**Calling all Webinar Authors!!**

Dave Auda ([davidauda@yahoo.com](mailto:davidauda@yahoo.com))

We would like to extend an invitation on behalf of the ASQ Risk and Reliability Division (ASQRRD). If you would be interested in being a presenter of an ASQRRD webinar, contact Dave Auda. Webinars run every 2nd Thursday of the month at noon EDT for 1 hour. The content should be something that the attendees can use, Reliability-related knowledge and/or skill.

**Why present?** A large potential audience that we invite, an additional entry to your resume demonstrating competence, refine your skills, AND earn recertification points.

If you have need of support in developing, preparing and/or presenting at such an event, we can support. Become a recognized subject matter expert!
ASQ Reliability & Risk Division Best Reliability Paper Award

We are pleased to announce the paper entitled “Comparing methods for assessing reliability uncertainty based on pass/fail data collected over time”, authored by Jeff I. Abes, Michael S. Hamada, and Charles R. Hills, published on Quality Engineering, 30:694–700, 2018, has won the 2018-2019 ASQ RRD Best Reliability Paper Award. One of the ASQ Reliability & Risk Division’s missions is to encourage the publication of reliability papers that are both technically sound and easy to be understood by reliability professionals. In this paper, the authors compare three statistical methods – logistic regression, Weibull failure time analysis and the RADAR method proposed by Vander Wiel et al. – for analyzing pass/fail data collected over time and use them to assess reliability of weapon systems. It is shown that these three methods may provide quite different uncertainty bounds on reliability.

Quality Engineering is a technical journal of ASQ published by Taylor & Francis. It is directed to professionals in all engineering and management fields interested in quality improvement and reliability. For additional information of ASQ RRD Best Reliability Paper Award, please contact Dr. Rong Pan at rong.pan@asu.edu.

Webinar Statistics
– 100,002 unique webinar registrations (Based on email addresses)
– 21327 RU’s accountable (Total visits)
– Average 99 attendees (95 last report)
– 216 Webinars offered end of Feb 2020 (since 2010)

Social Media Status:
• 4193 Members on LinkedIn
• 658 + 223 Followers on Twitter
• Facebook 49 pagelikes (54 Followers)

Some RAMS 2020 impressions:
https://www.asqrd.org/asq-rrd-on-rams-2020-a-first-summary/

How are people learning about ASQ RRD?
Relyence offers a complete solution for all your reliability and quality software needs. Along with our software tools, we offer top-notch technical support, implementation services, and training.

The Relyence Solution. Providing seamless integration between FMEA (including Process Flow Diagrams and Control Plans), FRACAS, Fault Tree, Reliability Prediction, Maintainability, RBD, and Weibull analyses, the Relyence tool suite empowers you to effectively manage your products throughout their lifecycle. You can use each module stand-alone, or combine the tools you need in our Relyence Studio integrated platform.

Power & Innovation. Relyence tools offer an impressive list of features. Just a few of the highlights include: customizable cross-module dashboards; user-interface customization; flexible report generation; data importing and exporting; API functionality; device libraries; workflow, approvals, and notifications; user and group roles and permissions; and Relyence innovations such as always-in-sync™ technology, smart-layout, Knowledge Bank™ for lessons learned reusability, and FMEA-Fault Tree link-sync™.

Flexibility & Collaboration. All Relyence tools can be accessed from any computer, PC, Mac, laptop, tablet, or smartphone for ultimate flexibility and team collaboration. You can use Relyence either as an on-premise installation on individual computers or a network, or as a zero-client, browser-based platform with your data hosted in the Microsoft cloud or in your own private cloud. The choice is yours!

Rely on Excellence. In conjunction with our software tools, we provide world-class services to help ensure your success. Our Implementation and Training teams can get you up to speed quickly, and our Technical Support team consistently provides support that is unparalleled in the industry.

TRY FOR FREE
Come join us in discovering new knowledge of reliability and risk prediction!

The conference will feature an extraordinary program, keynote speaker, recognition events, and optional pre- and post-conference courses. This conference will be an excellent learning experience and a fun event socializing with reliability engineers, risk managers, and academic researchers. A pre-conference course on problem solving/root cause analysis and a post-conference course on Weibull analysis will be offered.

Abstracts are due April 15, 2020. Refer to submittal information at asqrd.org/RMMR.

For more information visit asqrd.org/RMMR.
Tools to Use to Meet the 21st Century Challenges

Reducing Risk and Optimizing Reliability

We invite you to submit abstracts for presentation at the 2nd Annual Reliability, Maintenance & Managing Risk Conference to be held on August 18-19, 2020 (pre- and post-conference courses to be offered), in Napa, CA. The RMMR2020 is sponsored by the American Society for Quality, Reliability and Risk Division, and it is a forum for quality and reliability practitioners, asset and risk managers, statisticians and academic researchers to share and learn from each other. The goal of this conference is to share practical tools and methods to meet the ever-growing challenges of the 21st century. Potential topics include but are not limited to the following:

- Reliability Modeling
- Lifetime Analysis
- Repairable Systems Analysis
- Reliability Growth Modeling
- Accelerated Testing
- System Reliability Modeling and Analysis
- Prognostics and Health Management
- Maintenance Models and Methodologies
- Warranty Data Analysis and Management Software
- Big Data and IoT Applications for Reliability Improvement
- Reliability-based Design Optimization Risk Analysis and Management

If you are interested in presenting an applied or expository paper or case study in any of these topics, please submit an abstract online or email it to the program chair listed below. Please follow the suggested abstract format and indicate the expected competence level of your presentation. The program committee welcomes any suggestions for special session topics or speakers. If you have suggestions, please contact the conference chair or the program chair. For more information please visit http://www.asqrd.org/RMMR/.

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<tr>
<th>Submission Deadline</th>
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<td>Notification Date</td>
<td>May 15, 2020</td>
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Conference Chair: David Auda
Volvo, Greensboro, North Carolina, USA
David.auda@volvo.com

Program Chair: Rong Pan
Arizona State University, Arizona, USA
rong.pan@asu.edu

Call for abstracts are due April 15, 2020.

For more information Visit asqrd.org/RMMR.
The 67th Annual Reliability & Maintainability Symposium (RAMS®) will be held at the Rosen Plaza Hotel, Orlando FL during the week of January 25-28, 2021. The theme for RAMS® 2021 is “RAM in the Era of Big Data”.

With the advent and emergence of significant data availability for fielded equipment, reliability assessments can now be accomplished through the collection and timely analysis of equipment-specific field data and health monitoring systems. Engaging advanced techniques, such as machine learning and other advanced analytics, with these data sets enable the state-of-the-art to evolve to a much more proactive, effective, and cost-efficient reliability management approach.

With this in mind, we invite you to share your theoretical or practical findings of your research, engineering case studies, success stories, lessons learned, R&M based analyses and simulations, or R&M discoveries at RAMS® 2021 Orlando. Tell us how you are designing, optimizing, and supporting systems (both hardware and software) through the execution of RAMS disciplines.
2020-2021 ASQ-RRD LEADERSHIP POSITIONS

**Elected Positions**

**Chair**
Trevor Craney  
chair@asqrrd.org

**Chair-Elect**
Tim Gaens  
tim@asqrrd.org

**Secretary**
Rong Pan  
rong.pan@asu.edu

**Appointed Positions**

**Membership Chair**
Tim Gaens  
tim@asqrrd.org

**Nominating Chair**
Mark Durivage  
mdurivage@hotmail.com

**QE Best Paper Award Chair**
Rong Pan  
rong.pan@asu.edu

**Newsletter Editors:**
Jim Breneman  
weibullman@gmail.com
Mohammad Pourgol-Mohammad  
mpourgol@gmail.com

**Social Media:**
Tim Gaens  
tim@asqrrd.org

**Webmaster:**
Tim Gaens  
tim@asqrrd.org

**Marketing**
Angleat Shelikoff  
adshelikoff@gmail.com

**Webinar Outreach**

**Executive Producer & Speaker Manager:** David Auda (davidauda@yahoo.com)

**Chinese Host:** Frank Sun (franksun99@yahoo.com)

**English Hosts:** David Auda, Arun Gowtham Sampathkumar

**Spanish Host:** Norma Antunano (normaantu@aol.com)

**Data Analysts:** Rachel Stanford (stanford.rachel@gmail.com), Tim Gaens

**Video Editor:** Ward Baun (wardbaun@gmail.com)

*Contact Trevor (chair@asqrrd.org) to volunteer with us today!*
Frank Proshan was born and raised in the slums of Manhattan, New York. Growing up in a crowded tenement, Proshan developed an interest in probability at an early age by playing dice for pocket change with other children. He attended the City College of New York, and chose to further pursue the study of statistics. After graduating in 1941, Proshan accepted a position as a cement quality specialist with the National Bureau of Standards. He was later employed by the U.S. Geological Survey, making maps by stereoscopic methods. During World War II he worked on classified air-mapping projects in the Pacific Theater. In 1945, W. Edwards Deming helped Proshan land a position with the U.S. Army Security Agency, introducing the young man to early computing systems.

Proshan worked towards a master’s degree by taking night classes at George Washington University in the late 1940s. It was as a GW graduate student teaching five courses that he abandoned the traditional “formula” of mathematics instruction and developed his own style of teaching…. using jokes and wisecracks to keep the students engaged. Proshan originally intended to continue on to a PhD but instead accepted a position at Sylvania Electric Products.

After working on theory-driven Sylvania projects for a number of years, and with a fellowship from the National Science Foundation, he enrolled at Stanford University in 1956. At Stanford, Proshan was introduced to Richard Barlow, a fellow employee of Sylvania’s Electronic Defense Laboratories. In 1965 Proshan and Barlow published The Mathematical Theory of Reliability and, ten years later, its successor, Statistical Theory of Reliability and Life Testing (1975). These two books were responsible for defining reliability theory. In 1991, the Operations Research Society of America jointly awarded both men the John von Neumann Theory Prize for their contributions to the subject.

Proshan accepted a position at Boeing Scientific Research Laboratories (BSRL) in Seattle. Acting primarily as a researcher, he noticed that the data he collected were often times cited more than his actual analysis or application.

After BSRL lost funding from the USAF, Proshan joined the Department of Statistics at Florida State University in 1971. Retiring in 1992. Proshan received numerous accolades and honors. In addition to winning the John von Neumann Theory Prize, he is a fellow of the American Statistical Association and the Institute for Operations Research and the Management Sciences.

Selected Publications


Jim Breneman

ASQ Senior Member and SAE Fellow- Reliability
1. The effects of failure rates on increased temperatures is called the:
   a. Thermal model   b. Full scale Model   c. Arrhenius Model   d. Derating effects

2. Recognizing the nature of process variability, the process capability target is usually:
   a. looser than product specifications   b. the same as product specifications
   c. tighter than product specifications   d. not related to product specifications

3. (blank) software failure are the result of design errors.
   a. All   b. Most   c. Many   d. No

4. How can linear acceleration be verified?
   a. with a probability plot   b. with a hazard plot   c. either a. or b. None of the above

5. The purpose of derating parts is to:
   a. Increase parts life   b. Enhance overall system reliability
   c. Improve circuit design   d. All of these

6. A sequential test plan is graphically shown in the figure to the right.
   If the first 3 items tested fail, and the next 18 succeed, what is the status of the test?
   a. Reject the null hypothesis   b. Accept the null hypothesis
   c. Continue testing   d. None of these

7. Inherent of intrinsic reliability:
   a. is that reliability which can only be improved by design change
   b. can be improved only by an improvement in the state of the art
   c. is that reliability estimated over stated period of time by a stated measurement technique.
   d. is not an estimated reliability

8. An item has a constant failure rate of 50, and a constant repair rate of 22, what is the steady-state availability?
   a. 0.983   b. 0.924   c. 0.815   d. none of the these

9. The failure rate for a carpet manufacturer is 3.7 per 1000 square yards. What is the probability of finding no defects in a random sample of 100 square yards.
   a. 0.7145   b. 0.6907   c. 0.9581   d. none of these

10. Given a shape parameter of 1.7 for the Weibull distribution, and assuming no failures, how long will 20 items have to be tested to give a reliability of 0.95 at t=100,000 with 90% confidence?
    a. 119.329   b. 160,896   c. 189,744   d. 276,901

Answers will appear on ASQRRD blog by March 31