

Chapter 17

Disseminating Design Science Research

The first ninety percent of the task takes ten percent of the time, and the last ten percent takes the other ninety percent.

– Ninety-ninety rule of project schedules

17.1 Academic Route – Conference and Journal Papers

As you near the completion of a design science research project, your thoughts are now diverted to what to do next? Every researcher wants to publish their finding to the scientific community and in particular to their peer group. While academic publishing is certainly a preferred outcome of DSR, we would also like to mention that another possible (and lucrative) outcome of DSR is entrepreneurial activity for those who have the mindset. If you have built it, let them come.

As experienced researchers, and editors in the field, we share with the readers the challenges and issues of writing papers for leading conference and journals. In that context, we also briefly discuss getting funds from foundation to support your research. We also discuss the necessary first steps toward commercializing DSR by building a start-up company around the project artifact.

Refereed conference papers and archival journal publications remain the *cache* of the academic world. The mantra “publish or perish” is still true (see Drew and Gray 2008). Particularly in North American universities, getting tenure largely depends on your publication quality. If you are a design science researcher, there are particular issues you have to keep in mind.

Conferences are ideal venues to make your preliminary ideas known and get copyright. They provide excellent venues to network with other well-known researchers as your peer group and conferences are meant to generate feedback and constructive criticism of your research.

Senior scholars often suggest that you take one idea and develop the design and evaluation of it to full extent into a conference paper. It is important to publish your work in peer-reviewed conferences. Generally the reviewers look for certain distinct things in the paper:

- Is the idea original?
- Does the researcher know the current literature on the topic?
- Is the problem interesting and relevant?
- Has well-established methodology been followed?
- Is the paper technically sound?
- Is there something novel about the work?
- Is the evaluation, data collection, and analysis proper?
- Does the work have any meaningful contribution?
- Is the presentation and readability good?
- Does the paper fit the theme of the conference?

The above checklist is just a general guideline for researchers when they prepare their paper.

Many novice IS researchers who conduct design research often face a dilemma in choosing which conference to publish their paper. This is not an easy task and within the information system discipline often challenging. All conferences have gained some reputation over the years. People associate certain quality with them. One measure of quality is the acceptance rate. Highest quality conferences can have an acceptance rate of only 10–12%. Moderate conferences have acceptance rates of 33% while the lower quality conferences can have acceptance rate of 50% or higher. It is easy to find out about these measures by communicating with program chairs of conferences. Some people may also cite longevity as a good measure of a conference. If you find a conference that fits your work has been around for 30 years, it is a sign that this is a well-established conference which likely has its followers. But we should point out that design in information system is a fast moving field and every year we see new conferences being announced. Some of these newer conferences may tend to draw the leading researchers.

As we have pointed out in previous chapters, design science research is heavily practiced within disciplines such as engineering, computer science, and software engineering. For several years, the information systems field had stayed away from embracing design science as a valid research method. But since early 2006, it is becoming a recognized method within IS research. Hence some of the leading IS conferences in the past were not suitable venue for DSR. The authors of this book started DESRIST¹ as a definitive conference for design research in IS in 2006. Besides DESRIST, some well-known conferences that publish design research in IS are HICSS, WITS, and ICIS (design track).

It is important to note that a few major associations sponsor conferences. For DSR, the associations that tend to support these conferences are IEEE, ACM, AIS, and IFIP. One should also consider domain-specific conferences within computer science and software engineering that tend to publish design papers.

¹<http://desrist.org/>

Lastly, we cannot stress enough the importance of good reviews. One can easily measure the quality of a conference from the quality of its reviews. Authors should take note of constructive criticism that reviewers provide and by incorporating the suggested changes, one can significantly improve the quality of their paper.

Once you have worked on a design project, got the preliminary results published in a decent conference, the next step is to conduct more thorough work and publish the final paper in an archival journal. Journal publication is the crown jewel of academia. Journals require a higher level of rigor and may require many cycles of revision.

One question novice researchers often ask “How much different should a journal paper be from a published conference paper?” Our rule of thumb is that the journal paper should have at least 60% new material and results than the last published conference paper. It has to be rigorous and must clearly articulate contribution toward the knowledge base.

17.2 Funding to Support Your Design Research

For researchers working in the academic environment, grants and contracts are a way to support the design research projects. It is a way to recruit graduate students and pay them assistantships and also to build required laboratories with necessary resources. In North America, funding is typically available from three major sources: (1) federal government; (2) private foundations; and (3) corporations. They can differ in their mission and goals. But all of them publish RFPs or CFPs that will detail what they are looking to fund. The first step in preparing a research grant proposal almost always begins by reading the call for proposals.

Adhering to the format as stated in the RFP is very important. Requirements may vary between agencies and from year to year. However a generic proposal format is as follows:

- Cover page
- Summary/abstract
- Understanding of the problem
- Technical objectives
- Work plan
- Related work/background research
- Project milestones
- Key personnel
- Facilities/equipment
- Subcontractors/consultants
- Prior, current, or pending awards (more for government proposals)
- Cost/budget
- References
- Biographies of key personnel

The budget structure of the proposal could be a determining factor in an application. While the technical merits are clearly important, the proposal's success is also determined by cost. A typical budget includes the following items:

Direct Cost

- Salaries (or summer stipends)
- Fringe benefits
- Equipment
- Materials and supplies
- Travel
- Consultants
- Subcontracts

Indirect Cost

- Facilities and administrative overhead costs (ranges from 49 to 60% depending upon campuses)

Most agencies have a panel or roster of experts who mutually decide the outcome of a grant proposal. If one's proposal has a champion, it is likely to be funded if the reviews are strongly in favor. Hence calling program managers and meeting them at various networking events goes a long way to establish your presence to those who matter.

For IS research, the following are some suggested governmental and corporate agencies that typically fund design and software technology research.

- National Science Foundation (NSF) at <http://www.nsf.gov>
- Department of Defense at <http://www.defenselink.mil/sites/>
- National Institutes of Health (NIH) at <http://grants.nih.gov/grants/guide/>
- Department of Homeland Security at <http://www.dhs.gov/xres/>
- National Institutes of Standards and Technology (NIST) at http://www.nist.gov/public_affairs/grants.htm
- Ford Foundation at <http://www.fordfound.org/grants>
- Bill & Melinda Gates Foundation at <http://www.gatesfoundation.org/Pages/home.aspx>
- Hewlett Foundation at <http://www.hewlett.org/>
- Robert Wood Johnson Foundation at <http://www.rwjf.org/>

A comprehensive listing of funding sources and foundations can be obtained by subscribing to <http://foundationcenter.org/findfunders/>

17.3 Commercializing Your Ideas via Start-Ups

Entrepreneurs turn ideas into business realities. But the journey from a business plan on a piece of paper to a full-fledged profitable company is plagued with challenges and excitement.

A design researcher might have solved a problem and built a prototype artifact. But to take that to the next level of forming start-up companies there are several steps that one has to go through.

Most entrepreneurs need money to hire employees and build the company. Many obtain initial seed funds from friends and family who invest. They are often referred to as “angel investors.” It is important to incorporate the company and have lawyers prepare an equity structure for founders so that external money can be raised by selling preferred and common stock shares.

At the early stages finding money is difficult and frustrating process. There are angel investors who can provide small amounts of funds (typically in the range of \$100 K–\$500 K). But sooner or later, one has to tap into venture capital funds. VCs look at the business idea, management team, and are looking for growth potential and return on investment. Entrepreneurs are asked to submit their plans, and if the VCs like it, are invited to pitch their case. Having patents or copyrights often helps during this negotiation process. After serious negotiations, VCs may invest by acquiring a portion of the company in equity. Else they may turn you down by not funding. VCs are a tough crowd and often take ownership positions by being on the board.

As the company progresses, products and services are launched, it is important to build a brand name while generating revenue. Most companies aspire to become cash flow positive as soon as possible. A typical exit strategy is an initial public offering (IPO), when the company goes public. Or it may be possible that some larger company acquires the smaller start-up. A successful exit usually leaves the founder and entrepreneur a very wealthy person. It is also important to keep in mind that this is not an easy journey at all. High-powered competition often kills great start-ups. In the USA, statistics says that 92 out of every 100 start-ups usually fail or end up dying. For a comprehensive account of how to form start-ups, we refer you to Kaplan (1996) and Henos (1991).

References

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