VIS Restructuring Recommendations

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Introduction

In all disciplines that are growing, expanding, or maturing, the need for some reorganization is inevitable. While this document will focus on the need to address the structural and operational issues arising as part of the growth of IEEE VIS, the premier conference in the field of visualization, it must be read in the context of enormous successes of IEEE VIS and the field of visualization in general, which understandably are beyond the scope of this document.

IEEE VIS is at a crossroad: for many years it has been subdivided into the SciVis, InfoVis, and Visual Analytics conferences. There is now considerable appetite to consider alternative structures, such as a more unified conference, that may better enhance vibrancy and growth. Our goals are to preserve intellectual diversity while promoting organizational consistency. This subcommittee (Hagen, Keim, Munzner, North, and Pfister) has been charged by the VIS Executive Committee (VEC) to guide this decision-making process, which started in 2016.

We reported a first set of findings in 2017 ("Phoenix report"), which recommended increasing the number of tracks and the transparency of the process for approving and developing workshops and symposia into main conferences. After a round of feedback with and from the community, the VEC asked us to propose more fundamental changes to VIS.

We organized two similar workshops in the summer of 2018, at Dagstuhl in Wadern, Germany, and BIRS in Banff, Canada, as the cornerstones that provided a broad cross-section of the community a voice into the set of options under consideration. Invitees included the VEC, VIS Steering Committees, selected members of recent and upcoming VIS Organizing Committees, and many earlier-career researchers.

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Process

We invited 144 visualization researchers and practitioners who held current and recent organizing and steering committee positions and people who participated in the early career meet-up at VIS 2017, which was mainly tenure-track faculty who are ultimately going to lead the future of the VIS conference. The notably high acceptance rate of 62% indicated that the topic of the workshops resonates with the community; we had 43 participants at Dagstuhl and 46 participants at BIRS. The committee would like to thank Dagstuhl and BIRS for their hospitality and generous support of our endeavors.

The participants wrote one-page statements that were shared before the meeting. The organizers gave an initial briefing to frame the discussion regarding goals, scenarios, and lenses through which to evaluate them, and concerns and challenges. Participants made short oral statements highlighting key points from their one-pagers. After a brainstorming session to propose topics for breakout meetings, the organizers grouped the topics into themes. There was a series of breakout meetings, with plenary sessions to discuss the results and iteratively re-organize the themes based on progress made. Participants submitted one-page follow-up reflections a few weeks after each workshop. We wrote an executive summary of the workshops that has been sent to the workshop venues, the attendees, the VEC, and the Steering Committees.

The recommendations of the committee in this report were informed by the workshops, although they do not necessarily reflect the opinions of the participants. These recommendations will be distributed to the VEC and Steering Committees, and then to the community, and will be discussed at an open meeting at the VIS 2018 Conference in Berlin.

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Attendees

Dagstuhl

Gennady Andrienko	Tamara Munzner
Natalia Andrienko	Torsten Möller
Daniel Archambault	Stephen North
Benjamin Bach	Alvitta Ottley
Stefan Bruckner	Valerio Pascucci
Baoquan Chen	Charles Perin
Thomas Ertl	Hanspeter Pfister
Jean-Daniel Fekete	Giuseppe Santucci
Christoph Garth	Arvind Satyanarayan
Eduard Gröller	Gerik Scheuermann
Hans Hagen	Tobias Schreck
Chuck Hansen	Michael Sedlmair
Lane Harrison	Holger Theisel
Helwig Hauser	Julien Tierny
Hans-Christian Hege	Gunther Weber
Bernd Hentschel	Rudiger Westermann
Petra Isenberg	Wesley Willett
Tobias Isenberg	Jo Wood
Daniel Keim	Tatiana von Landesberger
Jörn Kohlhammer	
Heike Leitte	
Kresimir Matkovic	
Klaus Mueller	

BIRS

James Ahrens	Alex Lex
Enrico Bertini	Peter Lindstrom
Matt Brehmer	Shixia Liu
Peer-Timo Bremer	Kwan-Liu Ma
Sheelagh Carpendale	Liz Marai
Jian Chen	Miriah Meyer
Fanny Chevalier	Tamara Munzner
Chris Collins	Stephen North
Wenwen Dou	Michael Papka
Jason Dykes	Adam Perer
Niklas Elmqvist	Hanspeter Pfister
Alex Endert	Huamin Qu
Brian Fisher	Penny Rheingans
Angus Forbes	Carlos Scheidegger
Issei Fujishiro	Han-Wei Shen
Hans Hagen	Deborah Silver
Natalie Henry-Riche	Hendrik Strobelt
Seokhee Hong	Danielle Szafir
Jessica Hullman	Melanie Tory
Kate Isaacs	Cagatay Turkay
Daniel Keim	Terry Yoo
Bongshin Lee	Xiaoru Yuan
Joshua Levine	

Reports

The following reports are available at http://ieeevis.org/governance/restructure:

VIS Restructuring Recommendations, Fall 2018 (this report)

VIS Restructuring Workshops Executive Summary, Fall 2018

VIS Restructuring Workshops Summary, Fall 2018

VIS Restructuring Feedback, January 2018

VIS Restructuring Report ("Phoenix Report"), Fall 2017

http://ieeevis.org/governance/1810-Restructuring-Recommendations.pdf

Committee Recommendations

Committee Recommendations: Executive Summary

- Unification
    - Strike new subcommittee to flesh out concrete proposal for unified PC under an area chair model
    - Unify across V-I-S the mechanisms of conference papers and short papers
    - Integrate paper sessions within technical program
    - Immediately add new fourth general submission category adjudicated by current V-I-S papers chairs
- Publications
    - Start new Application Papers track with different criteria and PC/chairs from Research Papers
    - Keep current TVCG publication model, do not change to journal-only
    - Keep single annual deadline for VIS, do not change to rolling deadlines
    - Consider adding other journal partnerships
    - Remove TVCG presentation caps
    - Improve review process for better consistency and reduced workload
- Organization
    - Strike new subcommittee to involve more diverse practitioners, via expanded formats, mechanisms, & topics
    - Implement recommendations in first report on promoting some events to main week with VEC reps, via objective criteria
    - Ensure and enforce regular turnover at all levels of governance, increase transparency

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Unification

Although the separation of V-I-S (VAST - InfoVis - SciVis) has a historical basis, it raises many issues. Newer attendees of the VIS conference do not understand the separation and find it confusing. Another problem is that the separation may not align well with paper submissions, in which multiple aspects of visualization are involved that cross-cut the three historical areas. Our recommendations cover **unified area chair PC** and **governance**, unified publication mechanisms with **conference and short papers**, **integrated papers sessions**, and a new **'general' submission category** across V-I-S.

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Subcommittee for Unified PC and Governance

Recommendation: The VEC should strike a new subcommittee to fully develop a concrete unified area chairs model over the next several months (Nov-May), to include stakeholders from the many constituencies of VIS including V-I-S and its associated events. Authorizing this next-stage development process does not constitute a preapproval of the resulting model; a vote on whether it's a good idea should not take place until a concrete proposal is submitted. This subcommittee should also develop a new governance model that is appropriate for the proposed structure.

Rationale: A large majority of people attending the workshop spoke in favor of unification. The committee should synthesize an appropriate solution that may draw on a broad set of scalable models, including those at large conferences such as CHI, KDD, SIGGRAPH, and NIPS. A breakout group at the BIRS workshop fleshed out some aspects of an area chairs model in considerable detail, providing a useful starting point. However, this proposal is focused mainly on process questions, and has not yet resolved the crucial question of what areas would appropriately reflect the research interests of the community. That question must be addressed in detail through a process that involves the many different stakeholder groups; there was concern whether the existing communities would be sufficiently fostered and protected.

Timing: Short term: VEC strikes new committee. Medium term: VEC votes on committee recommendations.

Unified Publication Mechanisms

Recommendation: The publications mechanisms should be unified across all three V-I-S tracks with both 'conference papers' and 'short papers' in addition to TVCG 'journal papers.'

Rationale: All three conferences should provide the same publication mechanisms: conference papers and short papers, in addition to journal papers. The benefit of fully uniform mechanisms is the elimination of the disparity in acceptance rates between the three conferences, to provide a clear and level playing field where there is no interplay between the area of V-I-S and the mechanisms available for authors, and also decreased confusion for authors at the time of submission. The desire is to have a variety of publication mechanisms with different acceptance rates, different submission timing, and different submission formats, which will serve to attract more participants, in particular first-time and early career submitters.

The **conference paper** mechanism has been tested for multiple years by VAST, and entails papers that are submitted at the same time as those accepted to the journal special issue. The decision about which category a paper is in is made by the papers chairs. Authors are free to withdraw their paper if they do not agree that it is being categorized as a conference paper. This mechanism provides a way for higher acceptance rates than the current ceiling of under 25% for TVCG papers.

The **short paper** mechanism is now being tested by SciVis, and has been in place for many years at EuroVis. Short papers have a later submission date that is after the conditional accept round of the journal and conference papers. It provides a lower barrier to entry that is appropriate for smaller ideas and is particularly appealing for early career researchers.

Timing: Short term: can be rolled out immediately.

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Subcommittee for Practitioners and Diversity

Recommendation: The VEC should strike a new subcommittee focused on how to attract and retain the many different kinds of practitioners at VIS, with a mandate that includes proposing new formats and mechanisms for participation.

Rationale: The practice of VIS has grown dramatically, but VIS is not attracting enough practitioners, especially as repeat attendees, even when they are recently-graduated students. The VIS program should focus more on the needs of practitioners. Practitioners are crucial to bring energy, ideas and application problems to the VIS community. Areas where we can make improvements include the balance of program content, session formats, and types of presentations and speakers.

We are overbalanced in emphasis on presentations of journal papers. We should do more to reach out to adjacent communities, and to make one-day attendance attractive to various types of practitioners. Practitioners are often dependent on commercial visualization or visual analytics platforms and may benefit from tutorials based on these environments. Although we do not intend to compete directly with large industry conferences, we should learn from their success and adopt some of the features that make them successful, including invited talks. Workshops, minisymposia and tutorials tailored to the needs of practitioners would be a good step.

Timing: Short term: form subcommittee; medium term: implement the results.

Integrated Paper Sessions

Recommendation: Integrate papers sessions across all three V-I-S tracks and organize them by topic.

Rationale: The program of V-I-S should be integrated by topic in order to allow VIS participants to choose sessions according to their interests instead of potentially artificial boundaries introduced by the separate conferences. The process is a useful step towards unification. This integration has already started with the 2017 poster programm and was well received by many participants. The previously published TVCG papers will continue to be integrated with the rest.

Timing: Short term: can be rolled out immediately

General Submission Pathway

Recommendation: Allow authors to submit to a fourth 'general' VIS pathway in addition to the existing pathways to V-I-S separately. The papers chairs will jointly decide which of the three existing V-I-S PCs should review the paper.

Rationale: This change is a step less ambitious than a fully unified area chair PC that provides a way to submit papers without needing to understand the nuances of the distinctions between these three conferences. We anticipate that there will not be a high burden on the papers chairs because relatively few authors will want to let this choice be made on their behalf. This new category could make VIS more welcoming to newcomers immediately, without needing to wait for a full process of unifying the PCs.

Timing: Short term: can be rolled out immediately

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Publications

The kinds of publication **mechanisms** (e.g., journal vs. conference papers) and **processes** (e.g., frequency of deadlines) affect how contributors interact with the conference and what kind of contributions it attracts. The **paper review process** in particular affects all authors and needs to be thoughtfully considered.

Application Papers Track

Recommendation: Institute a separate application papers track that spans V-I-S, with a different call for papers, reviewing expectations, and reviewing process than the research papers track (namely journal papers, conference papers, and short papers). To oversee this application papers track there should be an entirely separate program committee and papers chairs, and these should continue as separate entities from the research papers track into the future.

Rationale: Application papers require a separate review process by both researchers with a strong focus on application problems and domain experts with a good knowledge of visualization techniques. Currently, these papers are reviewed with the same criteria (e.g., research novelty) as the research paper submissions. Instead, the insights for domain scientists and the visualization challenges in applications should be criteria for acceptance.

Application papers address a specific visualization problem with techniques that typically reach across V-I-S, so they should not be split between V-I-S but rather unified together in this new separate track.

Application papers may be appropriate for TVCG or for different journals. In any case, they could immediately appear in the IEEE Digital Library (like regular conference papers). The application paper length should be the same as for regular conference papers; these are full length papers, not short papers.

Timing: Short term: can be rolled out immediately.

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Keep Current TVCG Publication Model

Recommendation: Keep current publication model with normal VIS submission process once a year for a TVCG special issue, and the TVCG standard submission process all year where those previously published papers are presented at VIS. Despite considerable discussion of a "journal only" option at the workshops, the committee does not recommend it.

Rationale: The close collaboration with TVCG has been mutually successful, which has led some people at the workshops to advocate a "journal first" (arguably better called "journal only") option where the only path to journal papers at VIS would be the standard TVCG mechanism; that is, the VIS papers chairs and PC would only act on conference papers and no longer accept special issue journal papers.

A "journal only" would delegate total responsibility for the flagship VIS research papers to TVCG. While there is considerable flow of individual people between editorial and reviewing roles at TVCG and papers chair and reviewing roles at VIS, there are also many people at TVCG in these roles who are not a part of the visualization community since its scope extends to graphics and virtual reality. Moreover, at a structural level the policies of TVCG are governed by the Publications Board of the IEEE Computer Society, which has far fewer advocates for the interests of the visualization community.

The committee is concerned that a move to journal-only would dramatically decrease our control over the VIS technical program. The interests of VIS and TVCG are related but not always aligned; they necessarily have different agendas and objectives.

Timing: No action recommended.

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Keep Single Annual Deadline

Recommendation: Keep the VIS submission process for journal and conference research papers synchronized to a single deadline, once a year. Despite considerable discussion at the workshops of rolling submission deadlines, the committee does not recommend this change.

Rationale: The benefits of a rolling deadline model would be that multiple rounds of reviews and revisions during the year could be appealing to authors by making it easier to fix problems and get work accepted, while relieving some deadline pressure for both authors and reviewers. The cost of a year-long reviewing workload could be an unacceptable burden on PC members and chairs.

Perhaps the most serious cost of this model would be its impact on other conferences and the TVCG journal itself. A rolling deadline model would directly conflict with deadlines for EuroVis, PacificVis, and other events in a way that would reduce submissions for these other venues, to the detriment of the health of the field as a whole. A rolling deadline model would also be likely to reduce standard TVCG submissions in a way that would introduce major friction into our crucial partnership with the journal.

Timing: No action recommended.

Consider Adding Other Journal Partnerships

Recommendation: The VEC should consider whether to add partnerships with other journals.

Rationale: In broadening the scope and publication mechanisms of VIS, as we recommend elsewhere in this document, partnerships with additional journals are likely to be necessary. The VEC may want to consider partnerships with other journals or consider starting a new journal, which could then serve as a journal partner with specific VIS tracks.

Timing: Medium term: VEC consider further journal partnerships.

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Remove TVCG Presentation Caps

Recommendation: Strengthen relationship with TVCG by guaranteeing that **all** appropriate TVCG papers can be presented at VIS.

Rationale: The close collaboration between VIS and TVCG has been mutually successful for increasing the vibrancy and vitality of both the journal and the conference. The prestige of the journal venue for our proceedings has increased the quality of VIS submissions to the point that a majority of high-impact papers are in our special issue, and the visibility of VIS presentations has increased the number and quality of submissions to TVCG.

The current two-phase model has a ceiling of 25 guaranteed paper presentation slots, where further papers beyond that cap are accommodated on a best-effort basis. Recently this ceiling was hit, which caused considerable consternation to authors, even though in the end all papers were accommodated. It is important that the community feels assured that they will always be allowed to present their work at VIS when they submit to TVCG; it could have chilling effects if people lose confidence that work submitted to TVCG might not enjoy the visibility of a VIS presentation slot depending on the exact date of submission. Although the need to handle a variable number of papers presents logistical challenges for VIS, the benefits are worth this cost.

Timing: Short term: can be rolled out immediately.

Improve the Review Process

Recommendation: Strive to improve fairness for authors and reduce workload for reviewers; although these goals may come into conflict, many valuable suggestions were surfaced at the workshops. The VEC should take a more active role in steering and supporting the papers chairs as they consider how to:

1) Give papers chairs and PC members more autonomy, including the discretion to reject obviously unacceptable papers early in the review cycle (before assigning external reviewers), and to act as advocates for "interesting albeit imperfect" papers even if mean scores fall below a specific threshold. 2) Use and extend mechanisms to calibrate review quality, including tracking reviewer performance using existing PCS review feedback mechanisms, providing explicit instructions to authors in meta-reviews, and starting to recognize strong reviewing. 3) Remove poorly performing reviewers from the PC, and share this information across V-I-S. 4) Consider changing to a model of 3 reviews rather than 4 reviews, matching the standard TVCG process and reducing workload. 5) The goal of increasing acceptance rates, to maintain vitality of the conference, is the subject of two other recommendations (add conference papers across all three tracks and start the new application papers track). 6) Papers chairs should not rely on the new PCS assignment algorithm which has clear flaws and should only be used as a starting point, and ensure that the same criteria are applied to papers of the same spirit including checking that appropriate external reviewers were assigned. 7) Papers chairs should consult with current and past papers chairs and with steering committees to ensure that best practices are not lost between years or between V-I-S.

Rationale: We found widespread concern in the VIS community about the review process.
Timing: Short term: Papers chairs should incorporate these recommendations into the call and process for the next cycle.
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Organization

A new subcommittee should be struck to consider in depth how to attract more **practitioners** and a **diverse** set of participants. Act on the popular recommendations in the first committee report: establish clear pathways to **promote events** overall through objective criteria, moving into the main week and adding representation on the VEC. Regular turnover at all levels of **governance** is crucial to provide structure flexible enough to respond to changing situations and needs, and transparency should increase.

Promotion of Events

Recommendation: Implement the recommendations in [first committee report](#) on promoting some events to prime times and having additional representatives on the VEC, and on clear pathways to promotion overall through objective criteria.

Specifically, we recommend to add more parallel tracks for workshops and symposia on Sunday/Monday; add some parallel tracks for Tue-Fri to promote some events to "main table"; spell out gateways to growth (or shrinkage) with simple, explicit criteria, measuring success in terms of attendance, submissions, & quality; and add representation for more events on the VEC.

Rationale: Fostering organic growth of associated events is crucial to the future of VIS. Currently, there is significant unmet demand for both one-off and recurring workshop slots. It has been difficult to find the balance between old and new, and some successful workshops have not been renewed in order to make room for new ones. Overall, the criteria for accept/decline decisions are unclear, which leads to a perception of capriciousness.

We refer to a set of concrete steps in our [first committee report](#) that could be implemented immediately. Community feedback on these recommendations has been widely positive as documented in our [feedback report](#).

Timing: Short term: can be rolled out immediately.

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Current Governance

Recommendation: Ensure and enforce regular turnover at all levels of governance. Increase transparency so that decisions and policies, and the provenance of who made them and when, are clearly disseminated to the active community. The VGTC ExCom, VEC, and the V-I-S Steering Committees should regularly and promptly post minutes at an appropriate level of detail. Consider other models for governance that could include more elected positions.

Rationale: Governance turnover is necessary to ensure that the active community is involved and engaged, and give opportunities to grow into positions of authority. Many members of the community, even highly active ones, were unaware of crucial aspects of governance structure including the difference between the VIS Executive Committee (VEC) and the VGTC Executive Committee (VGTC ExCom), the extent to which the elected VGTC Chair appoints many leadership positions, and the length of the VGTC Director terms as ExCom members. There was concern that the upper levels of the organization (VGTC ExCom and VEC) are not flexible enough to respond to changing situations and needs by acting on them, due to insufficient turnover and a very top-down structure. A better process for involving new members may help to share the workload and responsibility currently on the VGTC Chair and other senior members, which can be considerable. The subcommittee for unified PC and governance that we proposed should be tasked with developing alternative governance models.

Timing: Medium term: develop new governance models and update the charters for the VEC and the VGTC.

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