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# The Building Blocks of Academic Writing in the Field of Information Systems

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# The Building Blocks of Academic Writing in the Field of Information Systems

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## 1 Introduction to This Commentary

At the Scandinavian Journal of Information Systems (SJIS) we receive numerous manuscripts that we unfortunately have to desk reject. Some of the rejected manuscripts just fall outside of the journal's scope and are therefore not sent out for review and some manuscripts are just theoretically or methodologically unfit to survive the review process. However, it is a frustrating situation for both editors and authors when a paper that would make a great contribution has to be rejected because it is so poorly written that we simply cannot see the potential that the paper might have. We believe that this is not only a problem at the SJIS but also at all other academic journals with a rigorous editor-led peer-review policy.

So why do authors send unfinished or poorly written papers? One reason that often keeps us from expending more effort on proofreading to ensure correct and concise language before submitting might be that we all are under growing pressure to publish more in shorter cycles. In the academic

world, the success of a researcher, professor, department, faculty, and even the university is measured by the number of quality publications they produce. Hence, our supervisors, professors, and deans want to see more and more publications as indicator for job performance. In our current academic society, we can rarely spend 20 years for data collection and writing as Charles Darwin did when he wrote his classic work “The Origin of Species”. So, how can we maintain sufficient quality in our academic publications under the growing pressure to get our works published?

In this commentary, we hope to provide some guidance on how to write good academic articles in the field of Information Systems (IS) that have a chance to make it into review and survive through the process. Specifically, our aim is to help doctoral students and early career scholars with tips on what to look out for when writing articles. However, we hope and believe that we can also provide some tips and ideas for more senior researchers. The topics and ideas that we contribute here are based on our long-term experience as authors, reviewers, editors, and lecturers in academic writing.

In the following sections, we first give an overview of the building blocks of academic writing. Then we go through the general outline of an academic article in the field of IS by providing an overview of the most important issues in each part of the paper, running from the title to the conclusion. We also provide examples of reviewers’ comments that we have received as authors and editors related to different parts of the paper.

## **2 Blocks in Academic Writing: From the Macro to the Micro Level**

The structure of a paper can be considered the macro level of your manuscript. This structure often depends on two factors: first on the methodology, as for example qualitative inquiries will typically need more room for the findings and quantitative versions will need more room for the development of the hypotheses from the literature; and second on the traditions that have evolved in the course of the history of a journal. So, in the case of the SJIS, it is vital that authors first read articles that are similar to the type of methodology they are going to use and then loosely keep to this structure. Many of our reviewers have been authors of highly successful papers and expect to see a certain journal flavor in the submissions.

By demonstrating a good level of knowledge on the current debates in the SJIS that truly correspond to your topic, authors can better connect to the ongoing discussions within the journal and make a good case for why this manuscript fits the scope and debate. It needs to be absolutely clear that the manuscript is targeting the SJIS, both from style as well as the touched research streams. That means that even if the topic would be within the scope (which is very important to check on the webpages and by reading relevant published papers before submitting), simple references to some papers from the journal without taking up the narrative within do typically not create any real connection and will fail to impress the editors and reviewers.

Besides the macro perspective, authors also need to consider the micro perspective by looking at the building blocks of academic writing. The inner composition of an article, starting from the macro level, is typically structured as follows:

- Sections, such as introduction, methodology, or discussion (these will be dealt with in more detail in the remainder of this paper)
- Paragraphs, as the main blocks of argumentation
- Sentences, as the main block of meaning and
- Words, as the nuclei of any writing

Let us start bottom up by looking at words first. One important piece of advice for writers of academic articles is to be clear and consistent with the specific terminology that you are using. While in other writing genres redundancy is often best avoided for aesthetical reasons, the consistency of using the same terms for the same phenomenon throughout the paper enhances its clarity and avoids confusing the reader and reviewers. One example could be an article on neuronal networks where the authors randomly switch between the terms *artificial intelligence*, *machine learning algorithms*, *deep learning*, and *neuronal networks* to denominate the phenomenon they are addressing. In everyday talk this may not make much of a difference; however, in a scientific article there are subtle but important differences between each of these terms. So, keep a short list of important, genre-specific words and their main definitions for your article and make sure you use these terms throughout in exactly this way.

Further, let us continue to look at sentences. Sentences convey meaning, but in addition, their structure and composition act as signals to the reader. A shorter sentence, for example raises the reader's attention and is therefore best used to highlight important findings. The order of a longer sentence should thus be structured so that the end can be connected with the beginning of the next sentence, for example through repetitions or pronouns. This creates coherence and helps the reader follow an argument as we will see later in the example of a paragraph.

In general, there are four types of sentences that can be used (see also Wallwork 2011):

*Simple – I have submitted the research article.*

Because we are not used to reading many short sentences, our brain works harder to derive meaning from one, making it perfect for highlighting an important argument.

*Compound – I have submitted the research article and now I am ready to prepare my lectures.*

Two simple sentences together. Here it is important to choose the right linking words (and, or, however, despite, although ...) to make sure you convey your true intention.

*Complex – I have submitted the research article, which has been our focus for the past few months.*

Here you use an intervening clause to provide additional, sometimes characteristic information.

*Compound + Complex – The research article, which has been our focus for the past few months, has been submitted and now I am ready to prepare my lectures.*

This is the maximum complexity for an academic sentence in the sciences. More words and a more complex structure will either be hard for non-native speakers to follow or invite some turbulence through potential grammar mistakes. In general, do not separate the subject from the verb using more than six to eight words and try to stay under 35 words as the maximum length for a sentence. Also, use full stops rather than colons. Your readers will find the article much easier to follow.

Now, finally, to paragraphs as the next level of building blocks. A paragraph typically should deal with one topic and one topic only in about five to eight sentences. It starts with a sentence that tells the reader what the paragraph is about and, in some way, connects with the previous paragraph. Within the paragraph it is best to move from old to new information by using trusted sources and then the newer ones. Try to maintain a logical sequence and do not force a change of perspective within a paragraph. Rather make sure that every step you take in the sequence brings the audience closer to understanding your point of view – be it the minority or majority viewpoint. The reader should be able to concentrate on your argument and your evidence for the argument. To ensure this is the case, make clever use of the types of sentences discussed before and use linkers and phrases, but do not provide too much unnecessary information outside the scope of the main argument in the paragraph.

Here is an example of a paragraph. We will discuss the individual items in it underneath the sentences:

*(1) Although the inner workings of neural networks (NNs) are often poorly understood as demonstrated (some ref), their adaptability to training data seems remarkable (some ref).*

This introductory sentence explains what the paragraph will be about and the connects to the previous paragraphs. In this example, the previous ones obviously discussed the poor understanding of the inner workings of NNs and this paragraph will now talk about the adaptability of NNs to data.

*(2) Yet, without adequate measures, this very adaption often leads to highly complex models (some ref), providing a perfect fit with the training data, but poor outcomes with real-world cases (some ref). (3) This leads to a sub-par validity of the models in a phenomenon called overfitting (some refs).*

Here the logic starts by pointing at the problem in (1). The *yet* at the beginning of (2) connects to the argument in the prior sentence (adaptability seems remarkable ... but). It continues with linkers from the general to the specific: *highly complex models – perfect fit with training – but poor outcome real world – this leads (3, with this as connection to 2) – to sub-par validity – called overfitting*. The reader will now understand that the next few sentences will deal with overfitting.

*(4) A way to avoid overfitting by reducing complexity is the introduction of penalty terms for higher dimensions in the form of Regularization (refs). (5) Mayr (refs), for example demonstrates... and Lehner (refs) compares how Regularization terms based on L1 norms (Laplace, Lasso) and L2 norms (Euclidean, Ridge) hedge against overfitting, and finds advantages of L1 Lasso norms because of a more effective inherent feature reduction. ...*

This is the main part of the paragraph. In (4) the specific topic is revealed. Then in (5) and perhaps a few more additional sentences, the argument on overfitting and how to deal with it is developed by providing insights from the literature.

*(6) Summing up, most scholars agree that the use of Regularization effectively reduces model complexity, following the principle of Parsimony or “Occams razor” (some refs), which leads to a better external validity. (7) Besides using Regularization, scholars however also suggest another approach, Dropout as an especially well-suited method to avoid overfitting.*

Sentence (6) now sums up the argument for a regularization to reduce overfitting by again picking up this word. There does not have to be always a “summing up” at the beginning of this sentence. It is enough if the sentence actually sums up. Sentence (7) then creates a preparation for a link to the next paragraph, which will obviously talk about Dropout. These linked paragraphs will build a section (such as the literature review or the discussion). In the next sections of this paper, we will now look in greater detail at what is important for each of these individual parts of a paper in the field of IS, starting from the title down to the conclusions.

### **3 Choosing the Right Title**

The title is your showcase to the audience. It provides a first impression of your work to the reviewers and readers and should tell what your work is about at its core. Later, the title will also help other scholars to find your

work through search engines and improves the possibility that the work will be cited in later studies on the topic. So, it is worthwhile to carefully consider how to present your work within one or two sentences. In general, a title should intrigue but not overpromise and certainly not banish readers through complexity. The length is also important. The title needs to fit into two lines. Every word you use should be important and add significance. It is good to avoid overly long titles; however, titles that are too short might just be too vague to generate real interest. Even though the title should attract attention, you cannot promise too much for the reader. Hence, the title must be in line with your topic and findings.

Here are some examples of three different types of titles:

- A Paradigmatic Analysis of Information Systems as a Design Science (Iivari 2007)
- The Imbrication of Technologies and Work Practices: The Case of Google Glass in Danish Agriculture (Stampe and Müller 2018)
- Smart Environments? Reflections on the Role of Metaphors in IS (Geirbo 2017)

The first example has only one sentence. It is short but informative. It tells the reader what the article is all about, including the method and the research field. The second example has a two-part title. The first part is more general, whereas the second part specifies the first part. This is a good way to first signal the general theoretical background and then the actual focus and context within that area. The third example is a question title divided into two parts. The first part attracts attention and contains a buzzword that is typically used in a rhetorical question, and the second part specifies the underlying topic in a more neutral manner.

## **4 Writing an Abstract**

An abstract provides an overview of your study and signals its merits. Together with the title it “sells” your work by providing the first impression of your work to editors, reviewers, and readers. So, be sure that the impression they get is good. Generally, the abstract should include at least the following parts: (i) the aim of the study and why it is important, (ii) the research approach or method applied, and (iii) the main findings, conclusions, and contribution. When you start your abstract, you can awaken readers’ interest by asking a question (see e.g. Ojala 2016) or highlighting the importance of the topic and connecting it to a recent phenomenon (see e.g. Yoo 2010). For an additional constraint, you also have to be brief and to the point as space is commonly limited to 100 to 300 words.

There are two different practices when it comes to writing an abstract. Some authors first write a “preliminary abstract” so that it works as a guideline for the writing process. Another practice is to write the abstract last



when you know precisely what the contributions of your study truly are. In reality, many scholars choose to do both. The first abstract can be used to communicate the ideas, methods, and expected findings, for example to co-authors and the final, completely rewritten abstract is then used as an inspiring summary for the reviewers and later readers of the article. Besides the readers and reviewers, editors read and evaluate the abstract to decide whether the article fits the scope and debates in the journal and if so, what kind of reviewer they should invite as a good fit concerning background theories and methodology.

Again, it is vital that you stick to the expected structure of the abstract for your target journal and provide a good logical argumentation in the abstract, running your logic from the general to the specific. It creates a bad first impression with editors and reviewers when the abstract format specifications (for example, a structured abstract or word count) are not maintained by the authors.

Hedging, a way of writing in a non-offensive way, is especially important in an abstract, as you might want to avoid insulting potential reviewers by stating at the beginning that their theories are flawed or that no one has done such work before, if indeed they have or believe they have. To provide an example, instead of writing *“The theory of cognitive fit so far is incomplete, as it misses the influence of experience”*, it might be better to say: *“While the theory of cognitive fit has seen excellent developments in the recent literature, the factors of experience might still enhance it by providing additional insights”*.

In addition, use hedging and be precise when it comes to your contributions – in the discussion section but also in the abstract. Instead of boasting *“Therefore we contribute to institutional theory by examining the legitimacy of crowdfunded tech-ventures”*, authors might want to write: *“By examining the legitimacy of crowdfunded tech-ventures, our findings point to the conclusion that legitimacy cannot be understood as an attribute alone but needs to be seen as a process given socio-economic organizations”*. The latter sentence is much more precise regarding what the contribution actually is, and it also lets the data (findings) do the “talking” instead of having the author claim something. As a final tip, the typical tense in an abstract is the present tense with present perfect for previous studies and earlier results that you connect to.

Possible comments from reviewers related to the abstract:

*“The abstract does not really ‘sell’ the paper”*

*“Your abstract needs further elaboration. What is it exactly that you are attempting to show in your paper?”*

## 5 Why the Introduction Section Matters Most

A good introduction is often very difficult to write as it needs to contain many elements and it is typically rewritten several times during the writing stages of the article. Experienced writers might rewrite the introduction more than ten times before they are finally satisfied. However, this effort seems to be well invested, as the introduction is also the part where reviewers and readers direct most of their attention as it frames the narration of the whole article.

In the introduction, you have to show that you know the research area well and manage previous literature that has been published on the topic. You have to lead the reader through the existing literature (what we already know) and justify the gap in the literature (what we do not know) yet without the breadth and depth that would be due in the literature review. Furthermore, the authors need to explain why the gap or problematization is relevant and worthy of study (see e.g. Sandberg and Alvesson 2010). Avoid vague arguments like “there is no research on this topic” as it can easily give the impression that your topic is not worthy of study if no one has been interested in it previously. Also, early on specify and justify the background theories that you apply, give a short overview of the context (e.g. target group) of the study, and briefly mention the applied research methodology. This is an important point as we have seen many reviewers search in vain for items of a quantitative study when in fact it should have been made clear in the beginning that the author’s intention was to apply a qualitative method. There are several phrases that can help guide the reader here. For example, the phrases “*therefore we explore*” or “*we look for a deep understanding of the phenomenon*” point towards a qualitative, inductive study, whereas “*we seek to explain how or whether A connects with B*” are clear signals of quantitative, deductive proceedings. In addition, if you use any odd or new terminology, provide a short definition of all the terms that are not familiar to your audience.

Altogether, there needs to be a lot of information provided within a short space (the length of an introduction is commonly one to two pages). There are several ways to structure and convey this information. Here, we provide some general ideas that might help you when writing an introduction. In the first paragraph, it is good to shortly describe the background of the topic and the key literature. In that way, the reader will gain an understanding of how you position your work in the current academic debate and literature. After the general overview of the topic, you can specify (e.g. in the next paragraph) your precise topic and its importance. This helps you to move forward to the next important issue: your research gap.

As an example, in his work, Su (2013) first presents the important role of China as a leading destination for global IT-service outsourcing. Thereafter, he highlights the fact that many Chinese IT service suppliers have to overcome challenges when expanding their business to foreign markets. This then helps to demonstrate the research gap by relating this topic to the

information systems literature that has not considered how suppliers expand into different foreign markets yet. Further, he explains that international business literature has not looked at the strategy formation process of internationalization. So, there is a clear and explicit gap (in general and in detail) in the existing knowledge and the paper aims to solve this gap.

Demonstrating a clear gap in the literature helps you to move on to the next important part of writing an article: the formulation of a research problem. The research problem has to be clearly stated in the form of a research aim (see e.g. Jarke et al. 2011) or objective (see e.g. Lohan et al. 2011). If you use research question(s), you need to present these questions distinctly (see e.g. Hjelholt and Jensen 2015) and make sure that they are in line with the methodology that you are going to apply (Eisenhardt and Graebner 2007). It is vital that with the research questions you do not overpromise and that at least in the discussion/conclusion section these are again picked up and answered in-depth and with all due precision. All too often, authors seem to get carried away by the interesting additional findings and unfortunately, they then end up not answering the initial research questions. Another issue that comes up in some manuscripts is that research questions are actually not to be confused with guiding questions. The latter are used to structure and sort the relevant literature to prepare for empirical research, while the former are questions that are going to be (hopefully) answered through the empirical fieldwork.

In the introduction, you also need to make sure that you provide an early idea of the contribution of your work, which then later has to be explained in depth in the discussion or conclusions section. For example, the work by Roland et al. (2017) clearly states two different contributions of their study. Their first contribution is the development of a typology of participatory designs and the second focuses on providing insights into the enabling and constraining roles of the architecture in relation to these participatory designs.

It is important to remember the hedging rules as mentioned above in the abstract section, and the fallacy of overpromising and underdelivering when it comes to contributions. In the above example, it is very clear what is intended and easy for the reviewers to check whether a typology was actually developed and whether there is a clear statement on the enabling/constraining roles related to this very typology.

Possible comments from reviewers related to the introduction:

*“The authors may wish to strengthen the motivation of the work. While I applaud the authors for attempting to emphasize the SME and software context, context alone is not contribution. Instead, I would ask the authors to more fully consider the theoretical contribution that may be embodied in their work.”*

*“No attempts are made to position the study in relation to such previous studies and to explain what we could learn more specifically. 1) Why are previously developed concepts and models not applicable here? 2) Why are*

*these firms so special? 3) What particular aspects of market entry and networking are the author(s) going to focus on?"*

*"Much more work is needed in order to position the study, specify the aims, and explain what the intended theoretical contribution is. The lack of purpose and intended contributions also makes it difficult to evaluate the rest of the paper, such as the choice of methodological approach."*

## **6 Reviewing and Presenting the Literature**

In the literature review, you need to go deeper into the theories and literature that you briefly described in the introduction. You do not need to cover all the possible literature on the topic here, but the most important works should be presented. Commonly, it is a good strategy to present so-called "classics" in the field and then the latest literature and proceedings. Writing the literature review also requires the skills to synthesize the existing literature. So, instead of discussing one article after the other, you need to take a more abstract view and summarize and critically discuss several articles together by combining and contrasting their quintessential findings and contributions. Of course, sometimes it is necessary to highlight some specific details from earlier singular articles, for example a specific method or a model that you may build upon.

The literature review needs to follow a logical order. For instance, you can start from a more abstract theory and then progress toward more practical insights. It is important that all the literature that you present is meaningful for your work – it should not become a textbook for learners. It should have a clear connection to other parts of the work and to the research questions or objectives. That means you would introduce and give an overview of all the key concepts of the study in the literature review and then follow these concepts consistently through the article. There should be no concept utilized later on that has not been introduced and critically appraised in the literature review. Readers should also come away with an understanding of why you present certain literature, theories, and concepts. If you for instance write a multidisciplinary work that integrates ideas from other fields, it might be good to write a short introduction in the beginning of the literature review that explains how different topics are related beforehand. Another idea is use summarizing figures or tables to demonstrate how the literature is related and make the current knowledge of the topic more easily visible. All this helps the reader – and reviewer – to create a certain frame in their minds, which helps to sort and order the vast information in the literature review and thus reduces their cognitive load, allowing them to focus on the argumentation instead.

Sometimes, especially in quantitative approaches with a substantiated theory development followed by hypotheses to be used as tests for the theory, the literature review becomes rather extensive. This makes it difficult for readers to follow and memorize all the key issues. In these cases, it is good to

have a short summarizing sub-chapter at the end of the literature review that concisely highlights the current knowledge and the research gap again. This way, readers can see at a glance what we know and what we do not know based on the literature.

Possible comments related to the literature review:

*“In your literature review, you totally miss the strategic management perspective, which looks at issue that you care in your analysis as market positioning.”*

*“It is unclear what the theoretical part leads to. 1) How is it used in relation to the empirical study? 2) Which ideas and constructs in the theory section do the author(s) regard as particularly useful and how are they related?”*

*“I am not sure what hypothesis 1a really means? This may be a result of the terminology use. For example, in the discussion leading to H1a you refer to proximity, distance, and closer. It would be easier for the reader if you use one term consistently.”*

## 7 Writing the Methodology Section

Generally speaking, this part is easy to write as all that needs to be done is to tell the reviewers and readers what, how, and why you collected the material, and how it was analyzed. However, some details that reviewers are looking for might feel too self-evident and are therefore easily left out or only described superficially. Reviewers will immediately zone in on these missing details and may even doubt your sampling or findings.

For the aforementioned reasons, the most important thing to remember in the research method section is to give as much information as possible about your data, its origins, and its selection process. Further, you need to justify all the choices that you have made. If you miss something, the reviewers will certainly raise questions related to the sample size, interviewees, data collection in practice, selection of the target group or interviewees, length of the interviews, questions asked, criteria used for the sample, etc.

The structure of the methodology section may vary – depending on the research design (methodology) and corresponding methods applied – and of course depending on the journal. In general, qualitative studies commonly provide an overview of the research design and method and why it was selected – meaning why this is supposedly the best method to solve the research problem. Thereafter, it is important to tell how the sample (data sources) was selected. This is generally followed by the description of the data collection and verification. In the end, you have to explain how the collected data was analyzed (see e.g. Lohan et al. 2011). It is also necessary to demonstrate how the qualitative data was coded and categorized based on research questions and how the coded data was used to form the findings of

the study (see e.g. Ojala et al. 2018). Even in qualitative inquires there should always be some considerations on validity, for example some intercoder reliability measurements or a reflection on previous expectations.

A quantitative method section generally follows a structure in which you first give a short description of the study design and method. Thereafter, you should provide a good overview of the sample, that is who or what was studied, and how the sampling frame was constructed. Thirdly, this section should include how the constructs were measured, what reliability and validity measurements were taken, and what method was used to analyze the possibility of common method bias (Podsakoff et al. 2012). If you are not just using some basic statistical modelling (e.g. regression analysis), it is good to explain and justify how the data was analyzed and why the chosen methods are valid options.

Possible comments from reviewers related to the research method:

*“What was the criteria for deciding if a firm had high, medium, or low alertness?”*

*“Why the selected firms are able to provide ‘polar’ types, as suggested in the paper, is unclear.”*

*“The paper has not adequately utilized the potentially rich, contextual data. Moreover, given the paper’s research question, whether a small-sample case study is most suitable for answering ‘what’ question is somewhat questionable.”*

## 8 Writing the Findings Section

The findings section might be challenging as there is no one single correct way to write the findings. Usually, findings are presented as such and then elaborated upon through a comparison with the literature in the discussion section. However, sometimes findings and discussions are written together to avoid too much overlap. The main goal of the section is to provide precise answers to your research aims, problems, questions, or hypotheses as presented earlier in the paper, besides the necessary additional robustness tests that will provide insights into the robustness of your findings.

Generally, findings should be written following a certain logic. One common method is to write this section so that the order follows the order of research questions or hypotheses. If you study a process, you can also follow a timeline and present the findings as certain steps that have emerged over time (see e.g. Langley 1999). In a qualitative study, you can also organize findings into different themes that emerge from the data and/or use certain categories recognized from the previous literature and derive propositions (Cornelissen 2016).

A common mistake in qualitative studies is to present the findings in an overly descriptive manner without a distinct, summarizing hermeneutic interpretation of the findings. Especially in the field of IS, it is a good style to clearly distinguish between first presenting the findings and then analyzing them within the frame of the chosen background theory. We suggest putting a lot of effort into explaining the findings as a whole – after perhaps clustering them into three to five main themes – without going into too much detail. It is also a good style to supply some direct quotations from the interview data to provide support for your own interpretations and link the findings to the raw material (see e.g. Vassilakopoulou et al. 2016).

If you use hypotheses, clearly present how the individual findings and outcomes were related to each hypothesis and whether the hypotheses were supported or not (see e.g. Hoehle et al. 2015). In that manner, reviewers and readers can easily follow your work and see that you really provide a sequence that answers your research problem. It is important that you provide information on the robustness of your statistical tests and the sample bias in additional tables or appendices. A modern style is also to focus more on the effect sizes and confidence intervals instead of the simple p-values when interpreting the results (Cumming 2011). Finally, help your audience find the most important issues by using illustrative tables and figures that provide an accessible overview of the key findings – but always also explain these issues in detail in the text.

Possible comments from reviewers related to the findings section:

*“The findings section is mainly descriptive and even though it offers a few quotes, it does not really offer any detailed insights into these companies and their relationship activities and no analyses or interpretations of their behavior.”*

*“Overall, the paper’s findings are somewhat expected, especially given the existing set of economic theories.”*

*“The findings do not really help to convince the reader that the results and conclusions are well supported by the empirical cases.”*

## 9 Why the Discussion is Important

This section is very important as here you have to demonstrate and argue that you have managed to solve the research gap and find answers to your research problem. This is also often the most interesting part of your work for readers – so readers who are eager to find the most important insights from your paper might actually read this part first after the abstract. For reviewers, a poorly written discussion section with weak arguments and no distinct contributions to the theory is a sure path to rejection, so this is the section that you need to manage well to satisfy the readers and reviewers.

There are many different ways to write and organize the discussion section. Like the findings section, this can progress based on the research questions or hypotheses. However, the main priority is that you follow a certain logic that is visible for the reader. In this part, the main aim is to relate your findings to your research problem (questions or hypotheses) and link them with previous literature on the topic. Derived from this you should elaborate how your findings contribute to the background theory that you apply. One aim in the discussion section is therefore to explain how and why your findings are either in line or inconsistent with the literature and theory. Following this explanation, you should then be able to describe how your work solves the given research problem and how it therefore contributes to our current knowledge on the topic – in other words, how the research gap as set out in the introduction is solved.

The discussion should bring your empirical findings to a more abstract, theoretical level. New theoretical insights can sometimes be demonstrated by drawing a model that visualizes and clarifies the new or expanded theory. If you draw a model, remember to explain everything that is happening in the model in a detailed manner in your paper (see e.g. Tan et al. 2015). Another option is to develop a table that includes the main findings and how these findings relate to the theoretical concepts that you apply. You can also use both a visual model and a table (see e.g. Ojala 2016). If you apply a positivist, qualitative research approach (Eisenhardt and Graebner 2007), the discussion section is also the place where you can develop propositions for further quantitative studies. However, be careful when you form propositions. Propositions should be in line with your findings, provide new insights, and be formed in such a way that other scholars can later test the propositions by using quantitative methods (see e.g. Woodard et al. 2013).

Possible comments from reviewers related to the discussion:

*“I was disappointed with the discussion section that was presented because it focused on presenting the results of analysis, rather than reflecting on the findings in the context of supporting literature and discussing the implications for theory.”*

*“The discussion is not in line with the goals set in the introduction. Due to this, it has not been easy to understand whether the objectives of the study have been met.”*

*“The author(s) repeatedly conclude that the things that they have found are supported by ideas in existing research. This impression is further supported by the propositions because they are unfortunately not very new or exciting. Why do we need a particular study on this topic? It seems that we can apply the theory that we already have.”*



## 10 Concluding and Closing a Paper

The aim of the conclusion section is to summarize your key findings and the contribution of the study. Sometimes, authors write this content in a joint section with the discussion to avoid unnecessary repetition. Even though there are several ways to write the conclusions, one five-step structure that we have found a good practice is described below.

First, provide clear and brief answer(s) to your research problem(s) or question(s). This can take the form of a short summary, so that “lazy” readers are able to locate the key findings easily if they jump from the introduction directly to the conclusion. In fact, one of the first checks as a reviewer is often to see whether the research questions from the introduction have been correctly addressed – and for this check, it is often helpful to find a short but to-the-point answer in the conclusion section.

Second, despite sometimes having already been discussed and derived in a lengthy argument in the discussion section, provide: (i) the theoretical contribution of your study, (ii) a demonstration of how your findings are related to previous theories in the field, and (iii) an explanation of how the findings enhance our theoretical understanding of the topic.

Third, even if your work mainly targets an academic audience, most academic works include some insights for practice. This is becoming more and more important, as research needs to demonstrate “impact” in order to access funding. Hence, you should briefly outline how the findings may be applied in practice and what entrepreneurs, managers, politicians, and other decision makers can learn based on your work.

Fourth, the conclusion should acknowledge limitations of the study. Research almost always includes some limitations that the author(s) could not address, given the time and space provided for one single article. This is the correct place to let other readers know about these potential shortages and the reasons for these, but also why your research is nevertheless meaningful.

These limitations can be also linked to the last but important part of the conclusion: guidance and directions for further studies. This is important as other scholars who are interested in your work and topic can see how your study might be taken forward. If you manage to add interesting “calls for further research” here, your readers might take up the leads and cite your paper as proof that their new topic and approach is important and that there is actually a need for further inquiries.

Possible comments from reviewers related to the conclusions:

*“The conclusion does not appear to summarize whether and how the research question was answered.”*

*“My greatest concern is about the actual contribution of the paper. This is because the author suggests that software renting renders significant competitive advantage to the firms under investigation. I am not convinced*

*by the evidence brought here, bearing in mind that competitive advantage should be sustainable for a relatively long period of time.”*

*“Conclusions are weak. The key findings and implications for IS theory and practice need to be drawn out. It does not show how entrepreneurship theory needs to be modified in this IS context. What would I do differently as an IT executive based on your findings?”*

## 11 Summing up and Ways to Move Forward

Academic writing can be a frustrating but also very rewarding process. While many scholars are experts in their fields and know very well how to apply their methods, it often comes down to their communication skills, which determine whether their research is accepted for publication and – sometimes much more importantly – whether it has a real impact, for example on the development of a theory, on practice, or on teaching.

With this article, we reflected on and exemplified our experiences as authors, reviewers, and editors. We ourselves have learned a lot through the excellent discussions conducted with our colleagues in the process of the creation of this article, for which we are very grateful. Now we sincerely hope our suggestions find their way to our readers and inspire them to write great articles and submit them to the Scandinavian Journal of Information Systems.

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