# Tips in writing and checking papers

Those tips are just for general writing only. The originality, technical validity, theoretical foundation and any other content issues are not discussed here.

# Procedures of writing a paragraph

* Clarify the topic sentence of writing
* Use examples to demonstrate the topic sentence if applicable
  + The examples should be able to support topic sentence
* Use logic reasoning to proof the topic sentence if applicable
  + Use “If P then Q; P; Thus Q” forms to support the topic sentence step by step. For more information about syllogism, we can check http://en.wikipedia.org/wiki/Syllogism.
  + Use smooth reasoning to form reasonable reasoning chains, such as “Premise 1->conclusion 1”->”Premise 2->conclusion 2”->…->”Premise n->conclusion n”. A smooth reasoning china is like a smooth curve:
    - An example of smooth reasoning is: “However, confidential IP might be revealed or leaked unintentionally to an unauthorized party in different situations in collaborative processes, which will damage manufacturers' competence and cause losses to them. As a result, how to protect IP in a collaborative product development environment is of critical significance for manufacturers' success.”
    - An example of unsmooth reasoning is: “Premise 1->conclusion 1”->”Conclusion 2<- premise 2”->…->”Premise n->conclusion n”. Here, ”Conclusion 2<- premise 2” disrupts the smoothness of reasoning chain. A broken chain is like a self-intersected curve:

The following sentence shows an example of unsmooth reasoning:” The issue of IP leakage is important because IP is often the source of the core competence of an enterprise, thus how to model the process of IP leakage should in fact concern any enterprise who cares about IP protection.”

* Check all sentences to make sure that all are simple sentences and have no grammar errors. For this part, we can refer the elements of style book.
* Check all sentences to make sure the verbs of all sentences belong to a similar context. For instance, “protect”, “prevent”, and “preserve” might be in one context; however, “protect”, “discuss”, and “check” are not very consistent in one context.
  + An example of inconsistent contexts: “Existing research indicates that IP leakage could occur in different situations~\cite{Lee2000b,Anand2009,Hoecht2006b}. The issue of IP leakage is important because IP is often the source of the core competence of an enterprise, thus how to model the process of IP leakage should in fact concern any enterprise who cares about IP protection. The discussion of the effect of IP leakage on the material and information flow of supply chain can be found in~\cite{Lee2000b, Li2002, Zhang2002, Hoecht2006b, Anand2009}.”. In this paragraph, the key word of last sentence is “discussion”, which is not consistent with other key words, such as “model”, “protection” etc.

# Procedures of checking a paper

* Logic checking
  + Check if topic is clear or not
  + Check if examples can support the topic sentence or not
  + Check if logic reasoning is smooth and reasonable or not
    - Put all section titles into one paragraph to see if all titles can form a reasonable reasoning (or we can check this outline view if using MS Word.)
    - For each section, put all paragraph topic sentences into one paragraph to see if they can make a reasonable reasoning
    - For each paragraph, check all logic relations of sentences
* Grammar and other issues checking (For this part, we can refer the elements of style book and related writing instructions)
  + Check if all sentences are grammatically correct
  + Check if all sentences are clear and simple
  + Check if all sentences are balanced (all clause structures in one sentence should be same)

# Example

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| In collaborative product development processes, some confidential IP might be revealed unintentionally to an unauthorized party. IP leakage is drawing more and more attention in collaborative development environments. Existing research indicates that IP leakage could occur in different situations~\cite{Lee2000b,Anand2009,Hoecht2006b}. The issue of IP leakage is important because IP is often the source of the core competence of an enterprise, thus how to model the process of IP leakage should in fact concern any enterprise who cares about IP protection. The definition of risk management in collaborative product development environments is a relatively new and growing research area. Some definitions of risk management in supply chains were given in \cite{Giunipero2004} and \cite{Juttner2005}. Neiger argued that the research purposes of risk management in supply chains are to develop ``approaches for identification, assessment, analysis and treatment of areas of vulnerability and risk in supply chains''. The discussion of the effect of IP leakage on the material and information flow of supply chain can be found in~\cite{Lee2000b, Li2002, Zhang2002, Hoecht2006b, Anand2009}. |

This paragraph has many problems:

* The topic sentence is not very clear. Too many ideas are presented in this paragraph.
* The relations between sentences within the paragraph are not clear. They are not in a smooth reasoning chain. For example, the last sentence is not tightly connected with other sentences.
* Some sentences break the direction of logic reasoning, such as “The issue of IP leakage is important because IP is often the source of the core competence of an enterprise”
* Other grammar related issues.

After revision, the revised paragraph reads:

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| It is well known that high competence and low cost are two critical factors for manufacturers to succeed in its business. On the one hand, IP is one of the most important competences for a manufacturer in the present knowledge driven economy. Manufacturers thus strive to develop and protect their IP in order to increase their competitiveness in the market. On the other hand, in an effort to reduce their cost, manufacturers have been outsourcing some of their businesses to other parties to leverage their labor or knowledge resources. However, confidential IP might be revealed or leaked unintentionally to an unauthorized party in different situations in collaborative processes, which will damage manufacturers' competence and cause losses to them. As a result, how to protect IP in a collaborative product development environment is of critical significance for manufacturers' success. |

We can see that the revised paragraph improved a lot at both logic reasoning and grammar aspects.