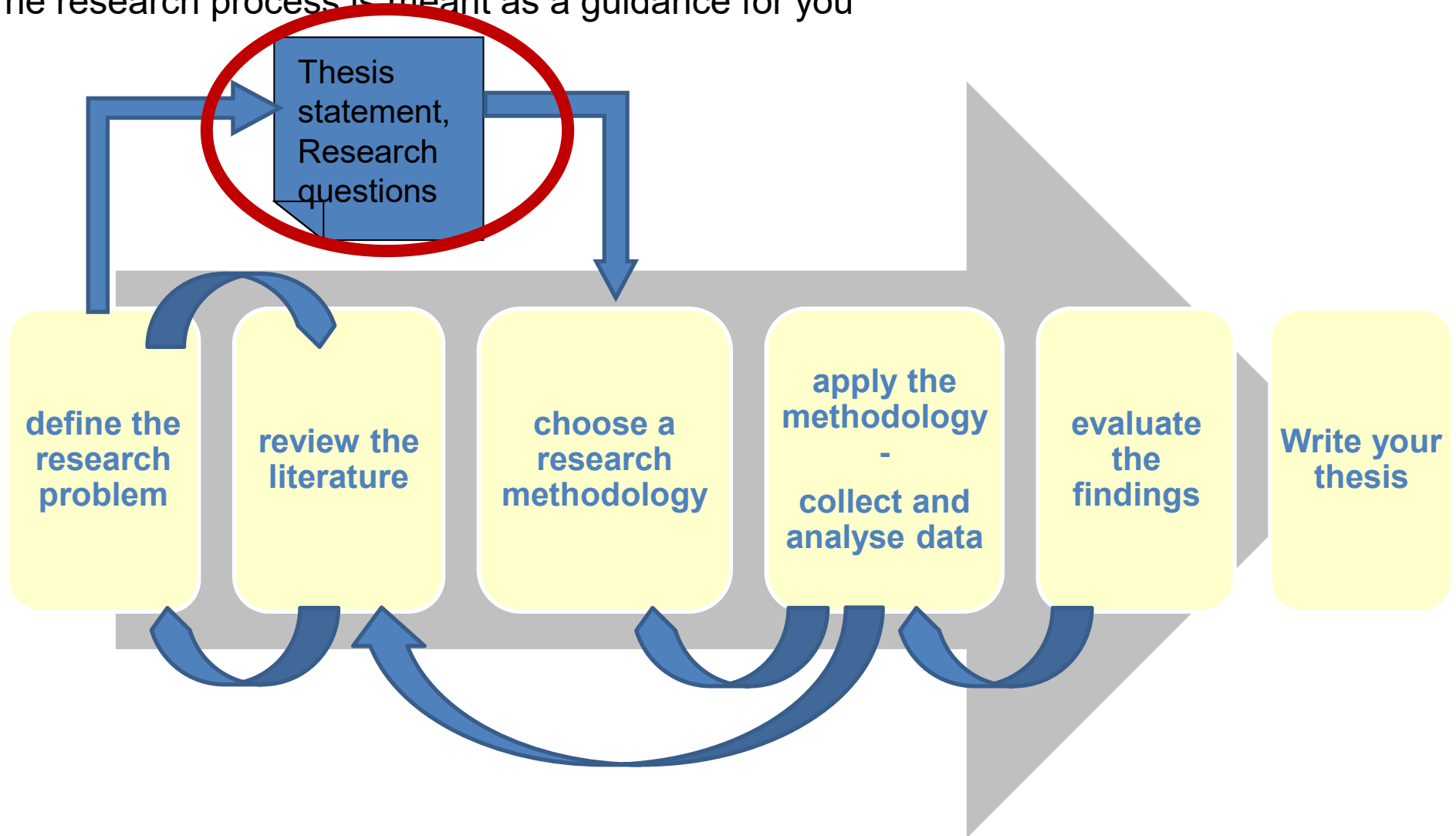# 4 Research Contribution and Thesis Statement

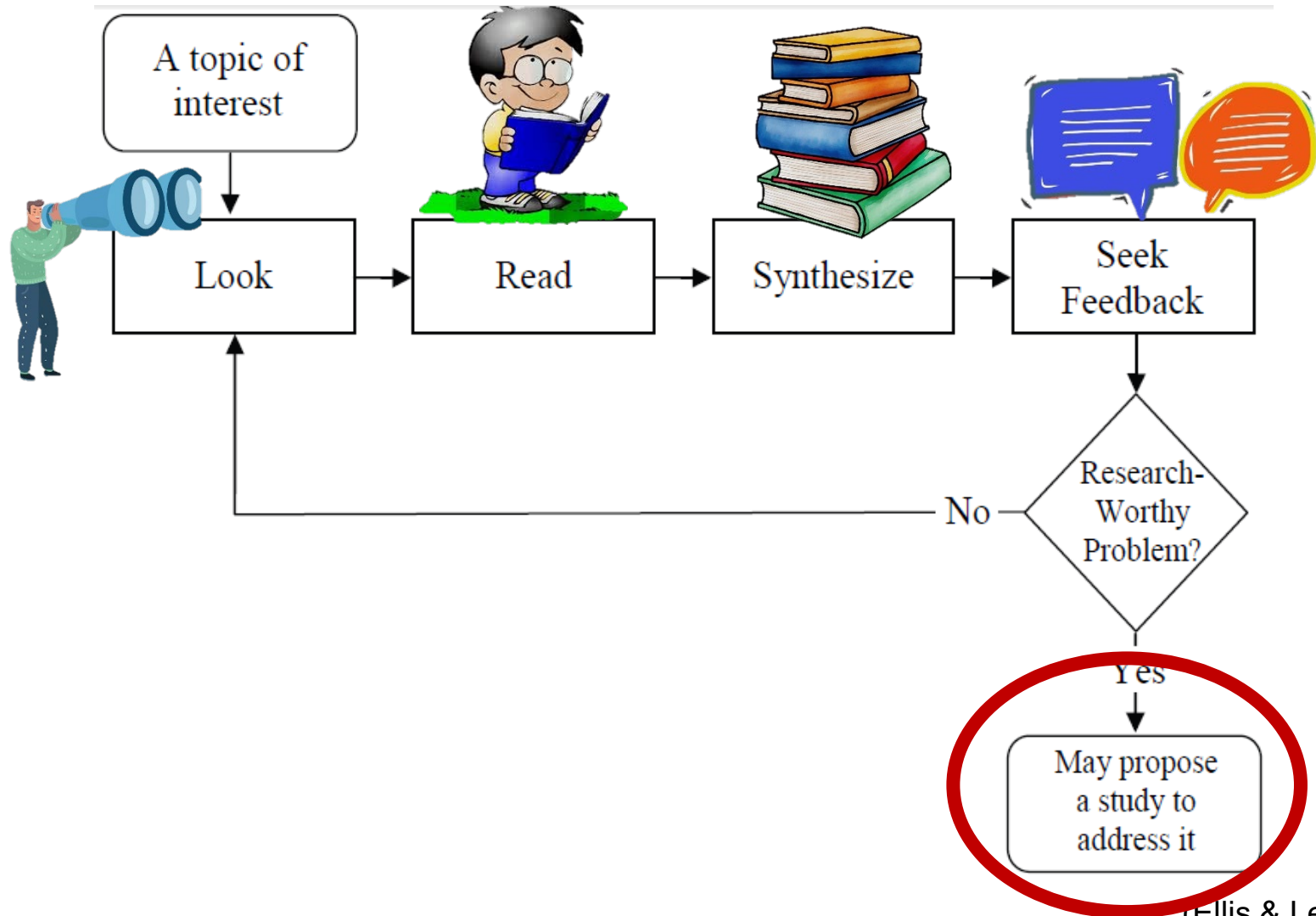*Knut Hinkelmann*

Research Process

The research process is meant as a guidance for you

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Process of Finding a Research-Worthy Problem

(Ellis & Levy 2008)

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■ Remember section 2:

1. What is a research-worthy problem?

2. How can we find a research-worthy problem?

3. How can we describe the research problem?

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Describing the Research Problem

Based on:

Presthus, W., & Munkvold, B. E. (2016). How to frame your contribution to knowledge? A guide for junior researchers in information systems. Paper presented at NOKOBIT 2016, Bergen, 28-30 Nov. *NOKOBIT*, vol. 24, no. 1, Bibsys Open Journal Systems, ISSN 1894-7719.

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The Problem Statement

■ Research is based on a well-articulated research problem

■ The problem statement offers the context necessary for addressing the *why* question.

■ The problem statement is described in the *introductory chapter* of your paper

(Ellis & Levy 2008)

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Possible Structure of your Introduction Chapter

most general

less general

concrete
(goal)

Research
Question

■ You can structure your Introduction like a «V»:

♦ You beginn with the most general thing (topic)

♦ Narrow down until you get to the problem and goal (written in problem statement)

♦ Then you phrase the main research question or thesis statement

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Problem Statement

- In the problem statement mention

  - What is the problem?

  - Where,When does it arise?

  - Why is it a research problem?
    - What has been done to address it before, if anything, and why is it not satisfactory?
    - How does the research contribute to the development of new knowledge (originality)?
    - What are the likely uses of the new knowledge (significance)?

(Ellis & Levy 2008)

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Problem Statement Template

1. ***What:*** In no more than two sentences, what is the problem that the research will address? Remember, a problem is, essentially, something that is 'going wrong'.

   Who: List three current, peer-reviewed references that support the presence of that problem and briefly describe the nature of that support.

2. ***How, Where, and When:*** Again, in no more than two sentences, describe the impact of the problem. How are people or researchers' understanding negatively impacted by the problem? When and where is the problem evident?

   Who: List three current, peer-reviewed references that support the impact of the problem that the research proposes addressing and briefly describe the nature of that support.

3. ***Why:*** In no more than two sentences, identify the conceptual basis for the problem. That is, what does the literature outline as the cause of the problem?

   Who: List three current, peer-reviewed references that support the conceptual basis of the problem and briefly describe the nature of that support.

(Ellis & Levy 2008)

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A Faulty Problem Statement

This describes a situation. There is not indication that «something is going wrong».

It is not enough to just point to literature, without indication of what is the content. There must be a discussion on how literature supports the point being made.

"One main obstacle of knowledge management is the lack of developed culture in an organization to ensure the acceptance of a knowledge management system (Becerra-Fernandez & Sabherwal, 2001; Bossen & Palsgaard, 2005; Kaweevisultrali & Chan, 2007; Pumareja & Sikkel, 2005). Non-acceptance of knowledge management system occurs with limited or no support when the proper culture for utilizing knowledge management is not practiced in the organization (Gottschalk, 2000; Kruizinga, van Heijst, & van der Spek, 1996; Swan, Newell, & Robertson, 2000). The basis for the problem is the lack of aligning knowledge management systems with the business strategy in order to develop knowledge management culture in the organization (Braganza & Mollenkramer, 2002; Chua & Lam, 2005; Storey & Barnett, 2000)."

There is no indication why failed knowledge management is of any concern. The impact must be articulated explicitly.

Not clear what problem. The text should explicitly identify the conceptual basis for the problem.

Example from (Ellis & Levy 2008, p. 29f)

See also the 6 steps of processing literature (Ellis & Levy 2006)

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A Viable Problem Statement

"Knowledge management systems (KMS) have proven to be quite difficult to implement (Becerra-Fernandez & Sabherwal, 2001; Bossen & Palsgaard, 2005; Kaweevisultrali & Chan, 2007; Pumareja & Sikkel, 2005). According to Pumareja and Sikkel, such difficulty was observed even when careful attention is paid to involving upper management and key stakeholders in the design and implementation process. Additionally, some difficulties in KMS implementation have been observed due to technological barriers (Bossen & Palsgaard) and users' perceived knowledge satisfaction (Becerra-Fernandez & Sabherwal). According to Kaweevisultrali and Chan, cultural values place greater emphasis on cooperation and team effort than individual goal attainment during KMS implementation. The benefits of successful KMS implementations have been documented. Wong, Crowder, Wills, and Shadbolt (2006) found that KMS implementation reduces product development time, while Beis, Loucopoulos, Pyrgiotis, and Zografos (2006) found that such implementation creates complex models to facilitate organizational change. However, KMS implementation coupled with the costs associated with failed attempts like lost revenues and reduced employee confidence make effective implementation of KM efforts vital (Braganza & Mollenkramer, 2002). Although a number of factors have been suggested as important elements in impacting the success of a KMS, the impact of organizational culture appears as a common thread (Bossen & Palsgaard; Kaweevisultrali & Chan; Pumareja & Sikkel). Unfortunately, very little attention has been given in literature to exactly what constitutes the optimal organizational culture for an effective KMS and how to foster that culture."

(Ellis & Ley 2006, p. 31)

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Deriving the Research Contribution

Based on:

Presthus, W., & Munkvold, B. E. (2016). How to frame your contribution to knowledge? A guide for junior researchers in information systems. Paper presented at NOKOBIT 2016, Bergen, 28-30 Nov. *NOKOBIT*, vol. 24, no. 1, Bibsys Open Journal Systems, ISSN 1894-7719.

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Research Contribution

- The key criterion for assessing research is to what extent it is considered a **contribution** to **knowledge**.

- Ideally, contribution should be to
  - ♦ Current theoretical understanding
  - ♦ Practice in the field

- For theses: Focus on contribution to theory

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Research Contribution and Thesis Statement   13

What is «Theory» ?

■ Theory is NOT any published literature

■ Theory is «… a systematic view of phenomenon …»
(Kerlinger 1976)

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Research Contribution and Thesis Statement

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Examples of Theories

- Physics
  - ♦ Theory of Relativity
  - ♦ Newton's Law of universal gravitation

- Information Systems
  - ♦ General Systems Theory
  - ♦ Theory of Reasoned Action
  - ♦ Theory of Planned Behaviour
  - ♦ Socio-technical Theory
  - ♦ Technology Acceptance Theory
  - ♦ Game Theory
  - ♦ Resource-based View

  … and many, many more   https://is.theorizeit.org/wiki/Main_Page

- Theory can also be a current approach for solving a problem

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Research Contribution and Thesis Statement   15

Types of Theory in Information Systems Research

1. *Theory for Analysing*: What is.

2. *Theory for Explaining*: What is, how, why, when, and where.

3. *Theory for Predicting*: What is and what will be.

4. *Theory for Explaining and Predicting*: What is, how, why, when, where, and what will be.

5. *Theory for Design and Action*: How to do something.

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(Gregor 2006)

How to determine the appropriate theory for your research

- *"begin with the research problem and research questions and then determine which type of theory is appropriate for the problem, given the current state of knowledge in the area and using the classes depicted here as a guide"* [1]

[1] See slide «Types of Theory in Information Systems Research»

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(Gregor 2006)

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Forms of Practical Contributions

Type of Contribution	Description
Lessons learned	Describes insights
Experience report	A descriptive, sequential report
Guidelines. Roadmap	Explicit, normative advice
Heuristics	A «rule of thumb»
Critical Success Factors	Activities that are necessary to ensure successful performance (e.g. related to project management)
Patterns	A re-usable solution to a problem

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Research Contribution and Thesis Statement   18

Forms of Theoretical Contributions (1)

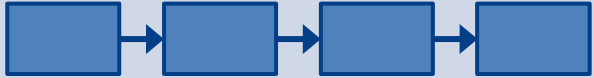| Type of Contribution	Description
Concept	The conceptual vocabulary of a domain (such as ERP)
Construct	An operational measure
Rich insight	Insights beyond concepts, theories or specific implications (e.g. limits of machine learning)
Case study, action/field study	A rich description of a phenomenon in its natural context
Taxonomy	A classification system
Framework	A conceptual guide to serve as support, typically for analysis or discussion
Problem Solving, Research Method	A set of steps (algorithm or guidelines) used to perform a task

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Research Contribution and Thesis Statement

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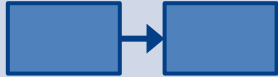
Forms of Theoretical Contributions (2)

Type of Contribution	Description
Proposition	A purpose with criteria. An initial, 'high-level' version of a hypothesis
Generative Mechanisms	Causal, self-reinforcing processes behind an output
Hypothesis	An explanation for a phenomenon. Must be testable and subject to further research before it becomes theory
Model	A set of propositions or statements expressing relationships among concepts or constructs
Mid-range Theory	Typically borrows theory from reference disciplines such as sociology
Design Theory	Focus on building a technological artefact
Ground Theory	Generalizations that are relatively unbounded in space and time

Remember: Developing a software itself is not a contribution: There must be an addition to the knowledge base – a new/improved method, algorithm, or approach

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Research Contribution and Thesis Statement

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Types of Contributions to an existing Theory

Original theory:

Type	Description	
Confirmation Replication	indicates that a chosen theory is still valid, or that it will work in different setting	
Modification	Modify a theory by **specializing** it for a specific context or **transferring** it to a different context/discipline	
Extension	adds to an existing theory, for example with an extra construct	
Contradiction	contradicts the whole, or parts of the theory, such as providing evidence of more interplay between the constructs	
Elimination	indicates that parts of the theory are obsolete in the chosen setting	

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Research Contribution and Thesis Statement

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Contributing to Existing Theory vs. New Theory

■ Contributing to existing theory: A theory borrows from other disciplines and transfers or specialises it to an information systems context

♦ Advantages:

● Conformity with accepted research

● Easier to convince reviewers for publication

♦ Disadvantage

● reinforces the assumptions of underlying, established theories (Presthus & Munkvold 2016 call it "vicious cycle")

● can prevent producing new and interesting theories

> "We do not believe that breaking out of the cycle is recommended for novice researchers"
>
> (Presthus & Munkvold 2016)

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Do **not** write something like

There is no research about ….

or (even worse)

To the best of my knowledge there is no research about ….

Instead identify a current (state of a) theory or knowledge to which you can contribute, e.g.

While [theory] has been applied in area X, it makes sense to find out whether it can be applied also in area Y, because it shows commonalities with X.

➡ Replication, Modification

While [theory] has been applied for problems like X, it shows deficits for Y (Reference, YYYY).

➡ Modification, Extension

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Guidelines for (junior) Researchers (1)

(i) **Balance your own ideas with extant research.**

Your idea may be good, but are you reinventing the wheel? How much do we already know about the topic? Reading relevant literature is crucial.

(ii) **Be critical to what you read.**

Ask yourself whether one more paper on the chosen topic is really needed. How do you think your contribution will add value to the existing knowledge?

(iii) **Have your supervisor as co-author.**

If you are a PhD student, it could be fruitful to involve your supervisor on the first one or two papers. After a few publications, consider starting your study by your own and see how far you get before involving a supervisor or a senior researcher.

(iv) **Have an idea of your intended knowledge contribution before you start the study.**

Your study will somewhat evolve, but you should have an idea of your intended contribution before you start the study.

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Research Contribution and Thesis Statement

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Thesis Statement

Based on:
- Hofstee, E. (2006). *Constructing a Good Dissertation*. Chapter 4. EPE.
- Slides from Prof. Alta van der Merwe

The **best way** to **do research** is to **make a radical assumption** and then **assume it's true**

Billy Joy

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Thesis Statement

- Once you have identified a problem, you develop a thesis about it.

- The thesis is the central argument of your work. A thesis statement names that argument.

- You take a stand about the problem or hypothesize a solution to the problem.

- A thesis statement is an assertion that you put forward as being (supposedly) true.

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Research Contribution and Thesis Statement

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Devising a Thesis Statement

■ The thesis statement is a conclusion from your problem statement

> ## The thesis statement provides a **hypothesis** for the **contribution** to your research problem

■ Problem statement and thesis statement are iteratively developed and refined especially during the literature review

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Research Contribution and Thesis Statement

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Purpose of Thesis Statement/Research Question

- A **thesis statement/research question** allows the researchers to precisely define what they will investigate.

- It prevents your research from meandering all over the place.

- It gives clear *boundaries* and a clear reason to do what you do.

- Whenever you do anything in your research, the reason should always be 'because it is necessary in order to assess my thesis statement'

> Agree with your supervisor about the thesis statement

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A Thesis (Statement) makes a Standpoint

- A thesis statement must take a stand about something.

- A person knowledgeable in the field must be able to challenge or argue your thesis.

- It must give you something to argue, to test, to prove, to probe, to measure.

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Research Contribution and Thesis Statement

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Research Question vs. Thesis Statement

- From the problem statement you define in a concise way **what you will investigate** in your research

- This can be done as a
  - Research Question
  - Thesis Statement

- Question and Statement differ only in the kind of phrasing
  - A thesis statement is an assertion that you put forward as being (supposedly) true and which you will investigate
  - Instead of phrasing a statement you can also ask a research question that you will answer

Research Question vs. Thesis Statement

Do public servants resign their posts because they earn too little in public service?	Research Question
Low earnings is the primary reason for public servants to resign their posts.	Thesis Statement
Low earnings is NOT the primary reason for public servants to resign their posts.	Thesis Statement

Don't worry if you are going to prove your thesis statement right or wrong.

You are not judged whether you proved your thesis statement right or wrong. You are judged on whether you investigated a worthwhile issue in a reliable manner and came to a well-substantiated conclusion about it.

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Thesis Statement

A **thesis** is a guess, an unproven assertion that you will investigate in your dissertation. A thesis can be argued with evidence, or it can be empirically tested, it generally referred to as a '**research hypothesis**'. In either case you are forced to take a clear position regarding the problem that you have identified, and to either argue for that position, considering the evidence for and against, or to develop a way of testing.

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Research Contribution and Thesis Statement

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Testing a Thesis Statements

Providing evidence for or testing a thesis statement is based on criteria. The criteria depend on the thesis statement. There are different kinds of criteria:

♦ These thesis statements refer to comparing states («improve», «better», «reduce»). :

- An IT system can improve the quality of recommendations for financial products.
- An IT system can make better recommendations for financial products than a human consultant.
- An IT system can reduce the time that consultants need to prepare their meetings with customers

This means that the evaluation must compare two situation (with and without the system), which is often difficult

♦ It is also possible to specify the evaluation criteria in the statement:

- An IT system can make recommendations that satisfy the customer.
- Technology is changing our lives in three important areas: in home, at work and in our leisure activities

Be aware that the criteria must be testable/measurable

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Research Contribution and Thesis Statement 40

The purpose of academic work is to come up with new knowledge. A good thesis statement should lead you up to that. This does not mean that it needs to be an original thesis in order to lead to new knowledge

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Research Contribution and Thesis Statement

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Criteria for Thesis Statement / Research Question

■ The thesis statement should be …

…a single thesis statement that a reasonable person in your field could agree or disagree with

…an unambiguous assertion

…worthwhile (= relevant)

…limited in scope

…feasible in terms of primary sources (i.e. can you get the data that supports your thesis statement?)

…based on existing theory

…doable in a reasonable amount of time

…testable by you

…within your area of interest/in synergy with career goals

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Research Contribution and Thesis Statement

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*Criteria for good thesis statements: A **single** statement that a person could **agree or disagree***

Is the thesis statement you are considering:

A single thesis statement that a reasonable person in your field could agree or disagree with?

Comment: Be careful that you do not focus on more than one topic within one thesis. If so, complete two degrees ☺
- A trap that students fall into because they are 'scared' they have not done enough.
- Remember that you will need two methods, two body sections, two conclusions etc.

Do not focus on more than one topic within one thesis!!

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Research Contribution and Thesis Statement

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Is the thesis statement you are considering:

An unambiguous assertion -

Comment: Thesis statement sets up your readers' expectations about your work. Readers must understand *exactly* what you mean to investigate or argue – nothing more, nothing less, and nothing different. Good thesis statements are very, very clear.

You will not be able to put all the implications into one sentence. You will have paragraphs describing these under your statement. Most of your first chapter is explaining what your thesis statement means. For example, problem statements, research objectives, definitions of terms, research questions etc. are all used to support the thesis statement.

Exercise: To find out how unambiguous your thesis statement is, write it down on 10 cards and give it to friends and family and ask them what does it mean. If they don't all agree, you have a problem.

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Research Contribution and Thesis Statement   44

*Criteria for good thesis statements: **Worthwhile***

Is the thesis statement you are considering:
Worthwhile?
Classic test: read it and then imagine someone saying "So what?" Your answer is the significance of the work that your thesis statement leads to. Note that significant is not a synonym for difficult.
You only need to make a contribution to the existing knowledge. It does not need to be hugely significant in order for you to get your degree. Academic work is *incremental*.

Thanks to Prof. Alta van der Merwe

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Research Contribution and Thesis Statement   45

*Criteria for good thesis statements: **Limited in Scope***

Is the thesis statement you are considering:	
Limited in Scope?	
Reduce the scope while retaining the significance.	
Thesis statements that deal with focused problems lead to dissertations with reliable conclusions that actually get completed.	
Compare:	
South African businesses need a new management paradigm in order to remain competitive in the global economy.	South African paint manufacturers who have nurtured a strong black middle management component have raised the productivity of their factory employees above that of their competitors.

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Research Contribution and Thesis Statement

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*Criteria for good thesis statements: **Feasible***

Is the thesis statement you are considering:
Feasible in terms of primary sources?
Can you get the primary data that supports your thesis statement?
The easier it is for you to collect the data you need, the sooner you will be able to complete your dissertation.
The better the quality of the data you use, the more reliable your conclusions will be.
For doctoral dissertations it is highly exceptional that you will be allowed to work exclusively with secondary sources.
Sometimes data may lead to the thesis statement ..You have the data and you then ask what value can I derive from this data?
If it seems as if it is difficult to get all the data you need, first consider alternative ways of answering the thesis statement. Or bend the thesis statement. If neither works, reconsider.

Thanks to Prof. Alta van der Merwe

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Research Contribution and Thesis Statement   47

Criteria for good thesis statements: **Based on Theory**

Is the thesis statement you are considering:
Based on existing theory?
There should be a theory based on the work that you are planning to do.

Thanks to Prof. Alta van der Merwe

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Research Contribution and Thesis Statement

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Criteria for good thesis statements: Testable

Is the thesis statement you are considering:
Testable by you?
If you can not test your thesis statement then there is no point in considering the dissertation on the topic.
If you can't construct a rational argument backed up by evidence, don't pose the thesis.
You need to give readers a good reason to believer, or at least consider carefully, whatever it is that you argue. The only way to do so is to have a good method.

Thanks to Prof. Alta van der Merwe

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*Criteria for good thesis statements: **Doable in Time***

Is the thesis statement you are considering:
Doable in a reasonable amount of time?
Check all the possible things that may slow you down: • Do you need funding? • Do you need data from somewhere else? • Is it feasible to monitor the group of people that you intend? • Is your supervisor committed to your thesis statement?
Don't take risk! Consider the pros and cons of commencing work for each of your statements.

Thanks to Prof. Alta van der Merwe

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*Criteria for good thesis statements: **Within you Interest***

Is the thesis statement you are considering:
Within your area of interest/in synergy with career goals?
Always good to compliment your area of interest/work with your research goals.
If you consider to do research related to your work interest, remember that you need to consider intellectual property.
Remember dissertations are the property of the University. The moment it is published ANYONE may use what ever was written within the work.
Consider a supervisor that is also interested in your topic – be careful to work in something that ONLY interest your supervisor. Be careful of 'larger' projects.

Thanks to Prof. Alta van der Merwe

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Research Contribution and Thesis Statement

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A good Thesis Statement leads to a good Dissertation

Thanks to Prof. Alta van der Merwe

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Research Contribution and Thesis Statement

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Approval of your Thesis Statement

- When you are happy with what you have – talk to your supervisor!

- Negotiate the thesis statement – don't work on it if it is not approved by your supervisor.

Thanks to Prof. Alta van der Merwe

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Research Contribution and Thesis Statement   53

Devising a Thesis Statement

Try conceptualizing your thesis statement as a marriage. Once you've committed you must be true to it; changing it is, like a divorce, unpleasant, messy, difficult and often expensive.

If you have a good thesis statement, it will be your North Star: If you follow it faithfully, it will guide you home safely.

Thanks to Prof. Alta van der Merwe

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