Computing Research Project

The literature study

The technology review

What could be in it?

- A brief overview of relevant technologies and ideas
- A focussed discussion on one or more specific topics (your choice) from current IT practice that relate to your project
  - Avoid general topics like “E-commerce”, make it specific like “A study of AI applications which automatically generate customer’s preferences for E-commerce websites”
  - Combine key concepts to narrow the focus e.g. “**security** concerns in **Web 2.0**”

What to avoid

- pages and pages of textbook/lecture material which is TOO general
  - The internet, the WWW
  - TCP/IP
  - Html, CSS, …
  - OOP
  - UML
  - Relational databases ….
  - ➢Try to use the materials/articles which have a FOCUS to your selected topic

think before you build

- ***Assess*** currently available software tools that support your type of development, not just the one you chose.
- ***Consider*** alternatives
- ***Read*** review articles that assess current technologies.
- ***Aim*** to do more that just catalog (list); compare and contrast, analyse

You should aim to …

- Confirm that your project idea is from a recognised problem area (*identification*)
- Show where it fits into the overall subject area (*relatedness*)
- Make it clear it is a worthwhile problem to solve (*valuation*)

Demonstrate value

Your literature survey can help you to *evaluate* your project

- How does your “build” compare against relevant standards
- Does it contribute (a footnote) to any of the topical debates in the Computing community on
  - Security, integration etc. …

Reviewing technologies

- Summarise, compare and contrast e.g.
  - ***Software tools*** for developing e-commerce (Dreamweaver, .NET, Actinic, NetBeans …)
  - ***Languages*** for developing web services
  - ***Operating systems*** – Windows vs Unix for web applications
- ***relate*** to your project
  - make ***connections*** with your project plan and its build requirements

Writing it up

- Every time your read an article online ***make notes*** (use a Word document) and enter the reference into your List of References at the end of the document.

- After you have created notes on 5-10 articles and looked at 5-10 books start to think about editing this into a report.

Editing …

- First organise your material by ***cataloguing***
  - You could put related articles together e.g.

    (Jones 1998) and (Smith 2001) describe how technology change has …
  - And/or you could follow a timeline (e.g. if it helps understand some current controversy) e.g.

    Moore's law (Moore, 1965) predicted that … but recent articles (Hussein 2004) have questioned whether there can be a limit

Engage your brain …

- ***Compare and contrast*** - work out whether a different approach
  - Agrees with the first one
  - Is complementary to it (looks at ***different*** issues, same topic)
  - whether it extends it, (looks in ***more depth*** at the same issues)
  - or is head to head (***disagrees*** with or is an ***alternative*** view)

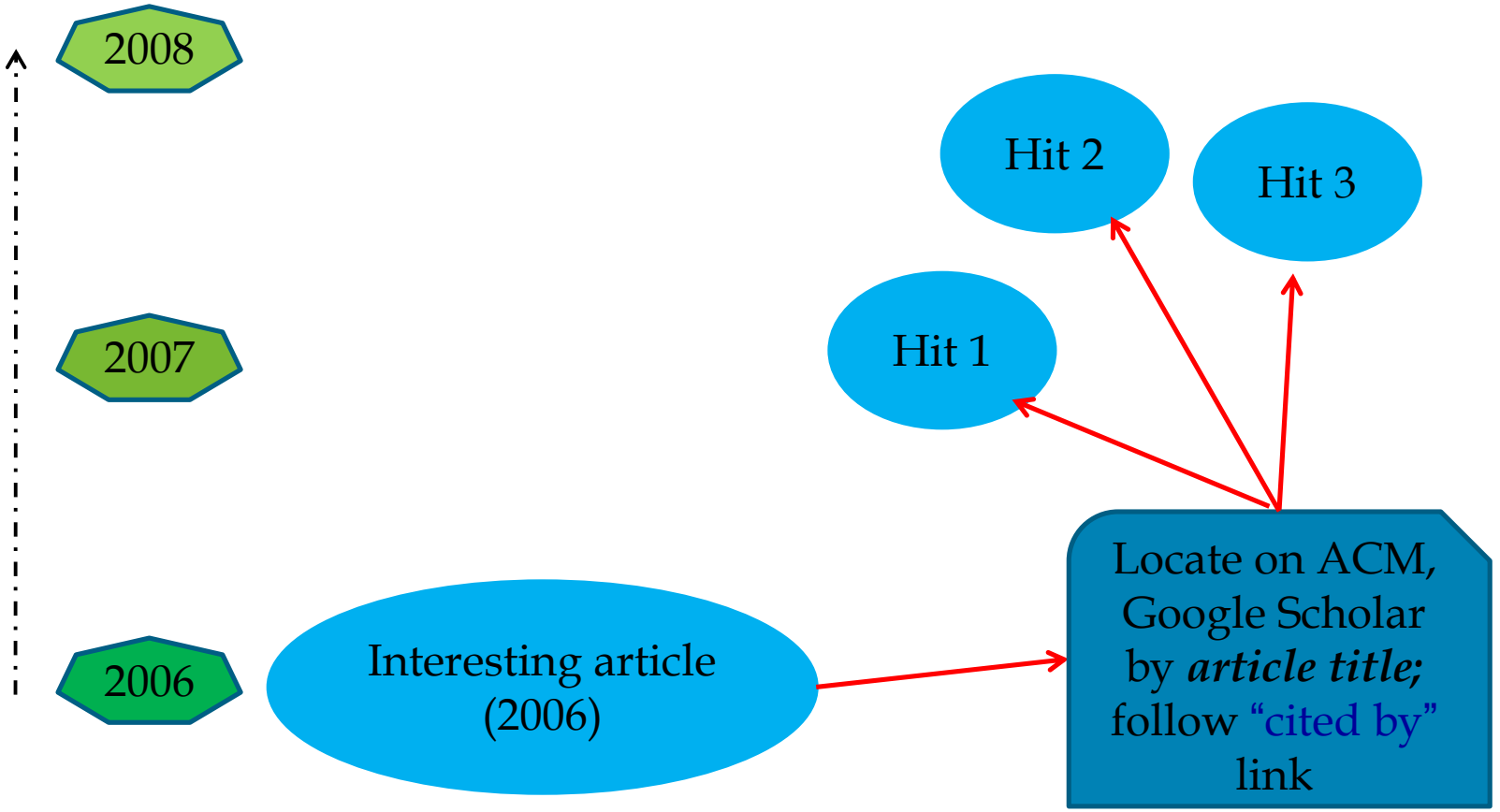
Key ideas

- Decide what are the ***key ideas, concepts***
- Look for a **specific focus** that could take you from one idea to the next e.g. an overall aim like ***standardisation***, or ***performance***, or ***efficiency***
- Now you should do some ***further reading*** to *fill in the gaps* or to follow up a topic *in greater detail*
- You may want to look for ***more recent articles***, that reference the articles that you have found useful, so that you be sure you are up to date. This is called a ***citation search*.**

citations

- Anyone who references your work in their own article is said to ***cite it*.**
- Decide which is your most interesting article and then look to see who has cited it and check them out too.
- This is supported by most digital libraries with a “cited by...” link.

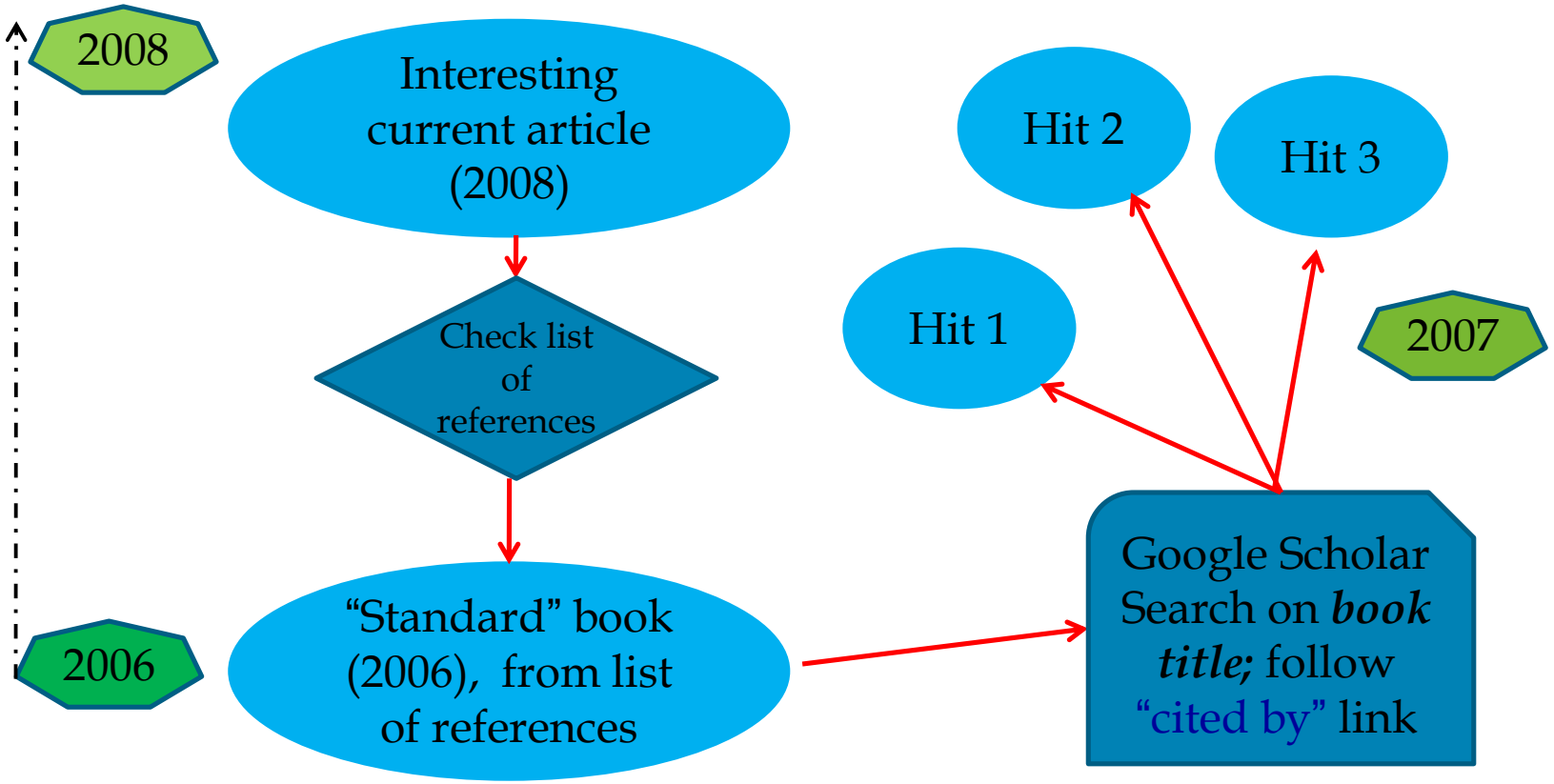
citation searching



Citation "diving"…

- ***Example***: use Bodin (2008) as a starting point (see my List of References later)
  - Recent article so no citations possible
  - => go to list of References in Bodin(2008)
  - Look for a "standard" reference
    - Gordon, L. and Loeb, M. *Managing Cybersecurity Resources: A Cost-Benefit Analysis.* McGraw-Hill, New York, 2006
    - Type the title as a search string into Google ***Scholar***
    - ***Hit 1*** **is "**Gordon, L. and Loeb, M. *Managing* …." and is followed by the Link **"cited by 22"**
    - Follow the link to **22 more recent** articles that all reference this book **(and probably discuss IT risk measurement)**

citation "diving"



Points of view

- Simply re-state what the author said: X *found, argued, believed* that ….
- Stay neutral: Z *reports* that …, *concludes* that …, *proposes* that …
- Enthusiasm: X *makes* a convincing case …,
  Y′s excellent description is …,
  in a well-argued study Z shows that …
- As a member of the community that knows:
  Y′s approach *has become* the standard,
  is controversial, …

But …

- ***Be sceptical*** - Is the article superficial or is it really setting out some useful ideas.
- ***In depth*** – check
  - ***Assumptions*** (realistic?, specialised …)
  - ***Credentials*** – check the list of references for previous papers by the same author (and also the ACM database)
  - Everyone makes the best of their results – ***keep an open mind*** until you have seen a few more papers with anything similar
  - The ***conclusion*** is where they have to be honest – what did they really do that was different.

Citing References

- ***All quoted material***, from any source, must have a reference immediately following, crediting the source, and italicised.
- Where you have written another person's ideas **in *your own words***, taken from published or unpublished literature the you must include a reference crediting the original source.
- The ***Harvard System*** must be used.
- ***Easy*** - providing you cut and paste the reference details from the digital library into your draft list of references when you find them!

Harvard system

- All written work referred to in your report should be accurately identified by the author name and year of publication e.g. Jones (2004).
- Two co-authors – given both names e.g. Jones and Parrott (2003).
- Multiple authors – use *"et al"*, e.g. Parrott et al (2006)

Quoting …

- Always put text taken directly from a written work in ***quotation marks*** and add the ***reference*** e.g.

  "Risk involves multiple dimensions and meanings within the context of information security. We propose a methodology that allows decision makers to combine them into a single composite metric – the perceived composite risk, or PCR."

  Bodin et al (2008).

- If you summarise someone else's written material, **say so**! E.g.

  The definition of PCR given below is summarised from Bodin et al (2007).

- Don't re-write in your own words – this is ***plagiarism*** **and will be** ***penalised*****.**

List of references

1. Bodin L. D., Gordon L. A. , Loeb M. P. (2008), *Information security and risk management,* Communications of the ACM, 51, p 64-68.
2. Clipsham, P. (2007), *Information, Methods and Culture*, Lecture Notes, University of Greenwich.
3. Portsmouth City Council (2004), *Start up and Micro Business, from Business Sectors, <Online>,* http://www.portsmouth.gov.uk/business

Citing the web

- All ***good quality*** information in a free society has a ***name*** attached somewhere and a ***date***.
- The name may be an organisation e.g. Cisco, Microsoft, OSF, Portsmouth City Council …
- Reference as e.g. Cisco(2005) and give the complete reference in the List of References using <online>, http://...
- If there is no author, or organisation willing to put their name to a web page then ***do not cite it –*** you provide evidence of poor academic judgement if you do.

Conclusion

- Your background and introduction can usefully review ideas/technologies that relate to your project
- Do not review textbooks!
- Gain marks by using online journal resources, good search techniques (citations)
- Always relate background material to your project topic