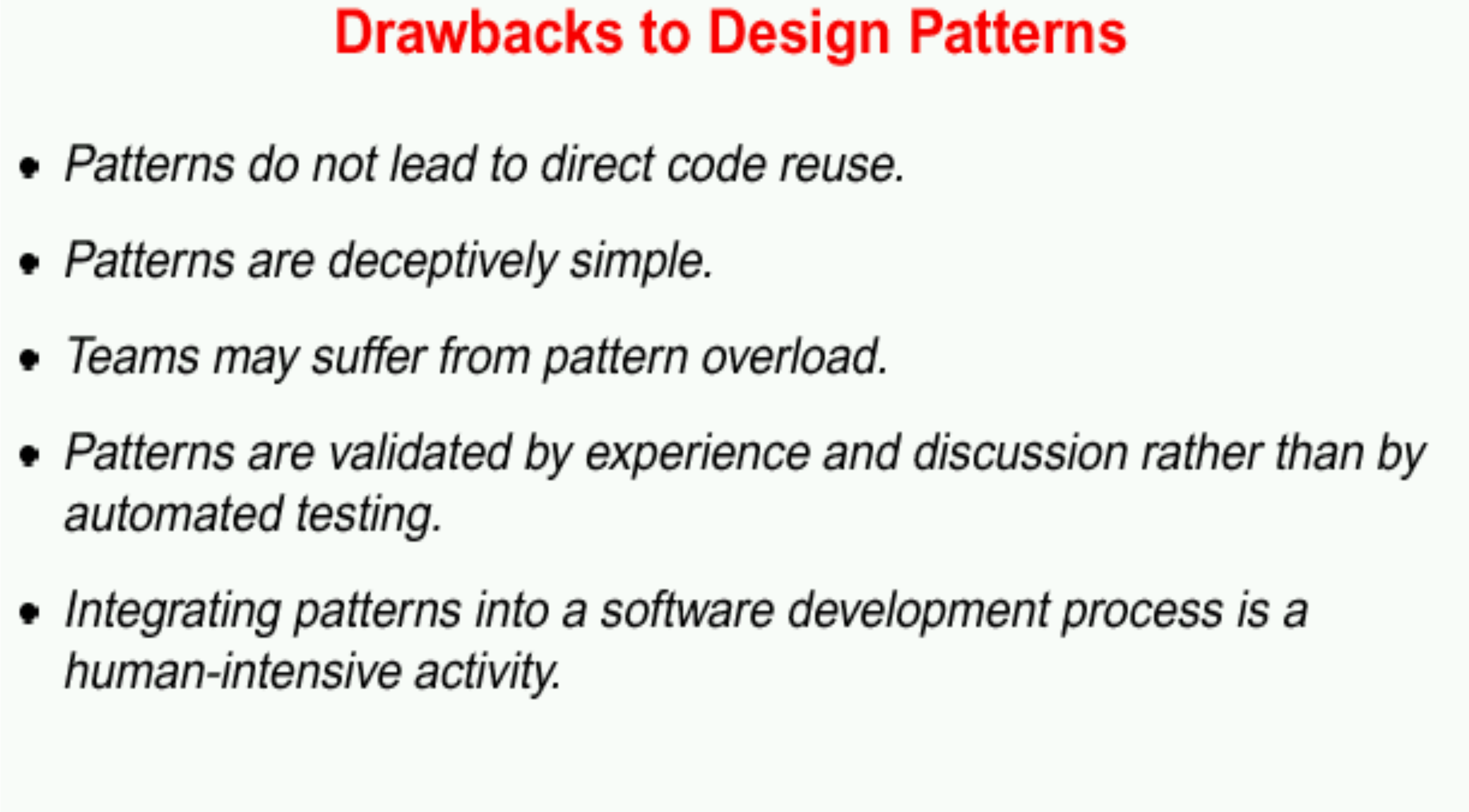
Patterns - Summary

Patterns concluding

Benefits of Design Patterns

- *Design patterns enable large-scale reuse of software architectures.*
  - They also help document systems to enhance understanding.
- *Patterns explicitly capture expert knowledge and design tradeoffs, and make this expertise more widely available.*
- *Patterns help improve developer communication.*
  - Pattern names form a vocabulary
- *Patterns help ease the transition to object-oriented technology.*



Drawbacks to Design Patterns

- *Patterns do not lead to direct code reuse.*
- *Patterns are deceptively simple.*
- *Teams may suffer from pattern overload.*
- *Patterns are validated by experience and discussion rather than by automated testing.*
- *Integrating patterns into a software development process is a human-intensive activity.*

Selecting a Design Patterns

- Consider how design patterns solve design problem
- Scan intent section
- Study how patterns interrelate
- Study patterns of like purpose
- Consider what should be variable in your design
- Examine a case of Redesign

Summary

- Reusable elements in a design
- Recurring similarity
- Increase representational power
- Favour object composition over class inheritance
- Delegation of an underlying principle
- Use Design Patterns whenever possible

Concluding remarks

- Design Patterns (GoF) provide a foundation for further understanding of:
  - Object-Oriented design
  - Software Architecture
- Understanding patterns can take some time
  - Re-reading them over time helps
  - As does applying them in your own designs!

References

- Erich Gamma, Richard Helm, Ralph Johnson, John Vlissides *Design Patterns: Elements of Reusable Object-Oriented Software* – Addison-Wesley 1995
- Frank Buschmann, Regine Meunier, Hans Rohnert, Peter Sommerlad, Michael Stal *Pattern-Oriented Software Architecture* Wiley 1996
- Martin Fowler *Patterns of Enterprise Application Architecture* – Addison-Wesley 2002
- Martin Fowler *Refactoring* – Addison-Wesley 2000
- Martin Fowler *Analysis Patterns* – Addison Wesley 1996
- Gregor Hohpe, Bobby Woolfe *Patterns of Enterprise Application Integration* – Addison-Wesley 2003
- Joshua Kerievsky *Refactoring to Patterns* – Addison-Wesley 2004
- Deepak Alur, John Crupi, Dan Malks *Core J2EE Patterns* (2nd Ed) – Addison-Wesley 2003

Web Sites

- Martin Fowler website http://www.martinfowler.com
- Portland Pattern Repository http://c2.com/cgi/wiki
- TheServerSide http://www.theserverside.com
- Microsoft Patterns and Practices http://msdn.microsoft.com/architecture/patterns/
- Design Patterns and design principles http://www.oodesign.com/

Thank You!!