
X-driven development: finding the right combination of approaches for systems engineering

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Report Documentation Page

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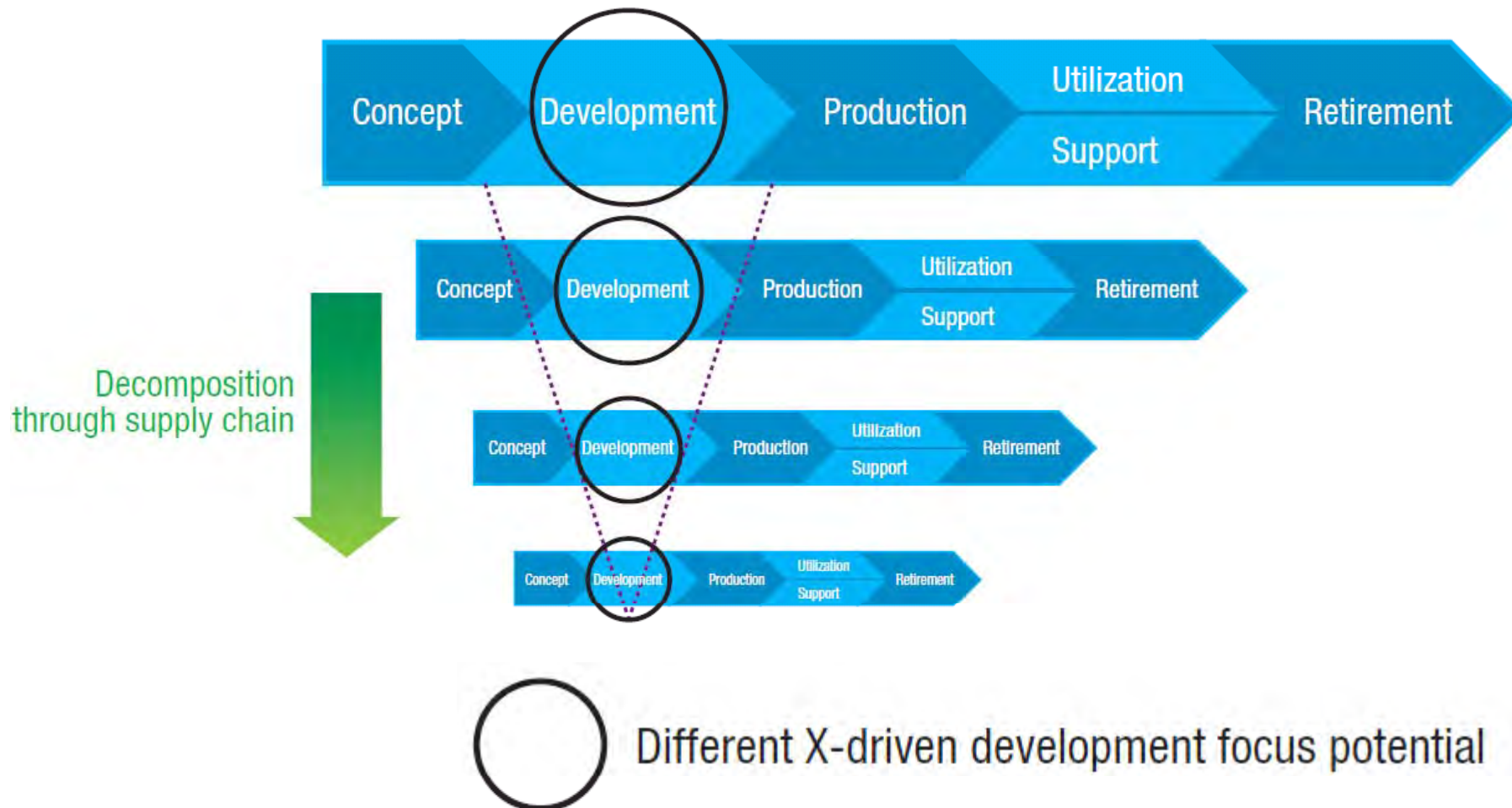
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One size doesn't fit all

Why variety is the spice of life in development approaches

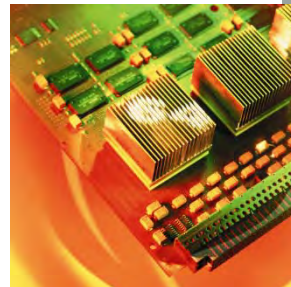
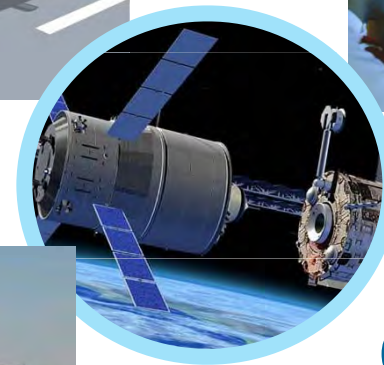
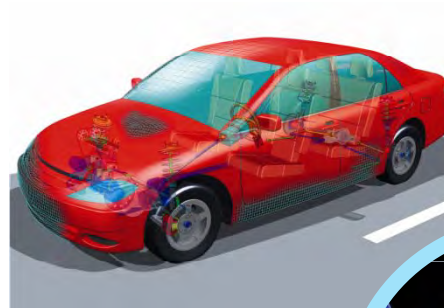
- *Based vs. driven* development?
- What are the project characteristics that matter?
- What about the industry?
- A framework for analyzing and selecting approaches
- Strengths and weaknesses
- Putting it all together

SE life-cycle “V” decomposition diagram



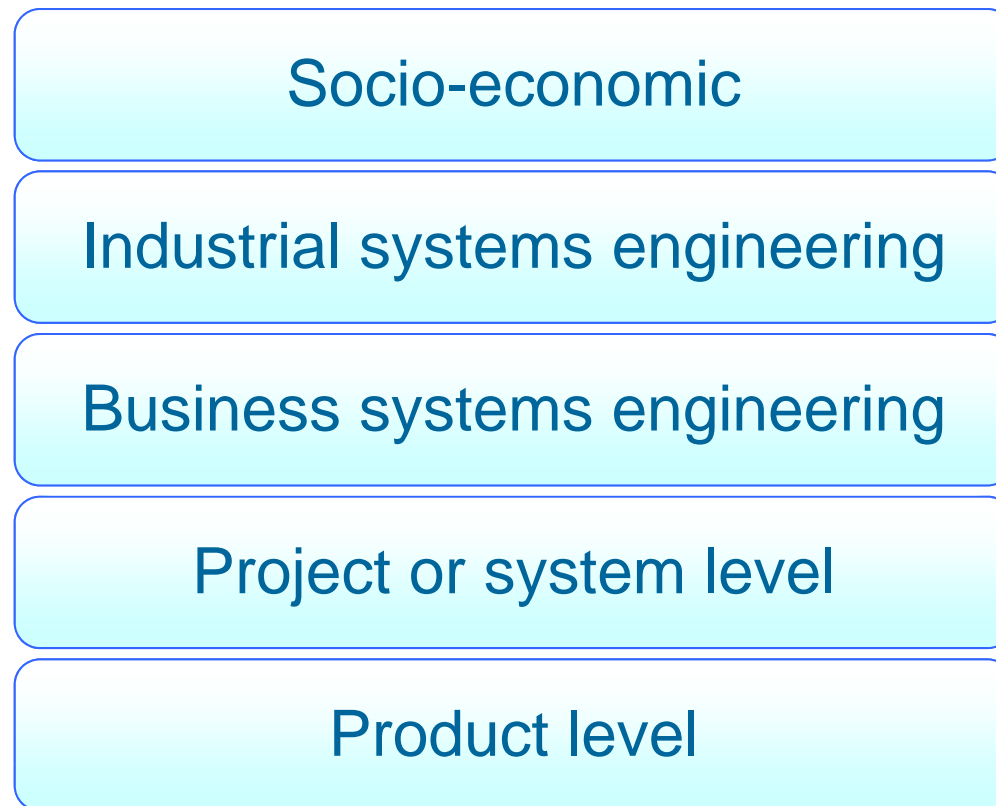
● Different industries have different needs...

- Safety
- Regulatory compliance
- Development timescales
- Project scale
- Project life
- ...

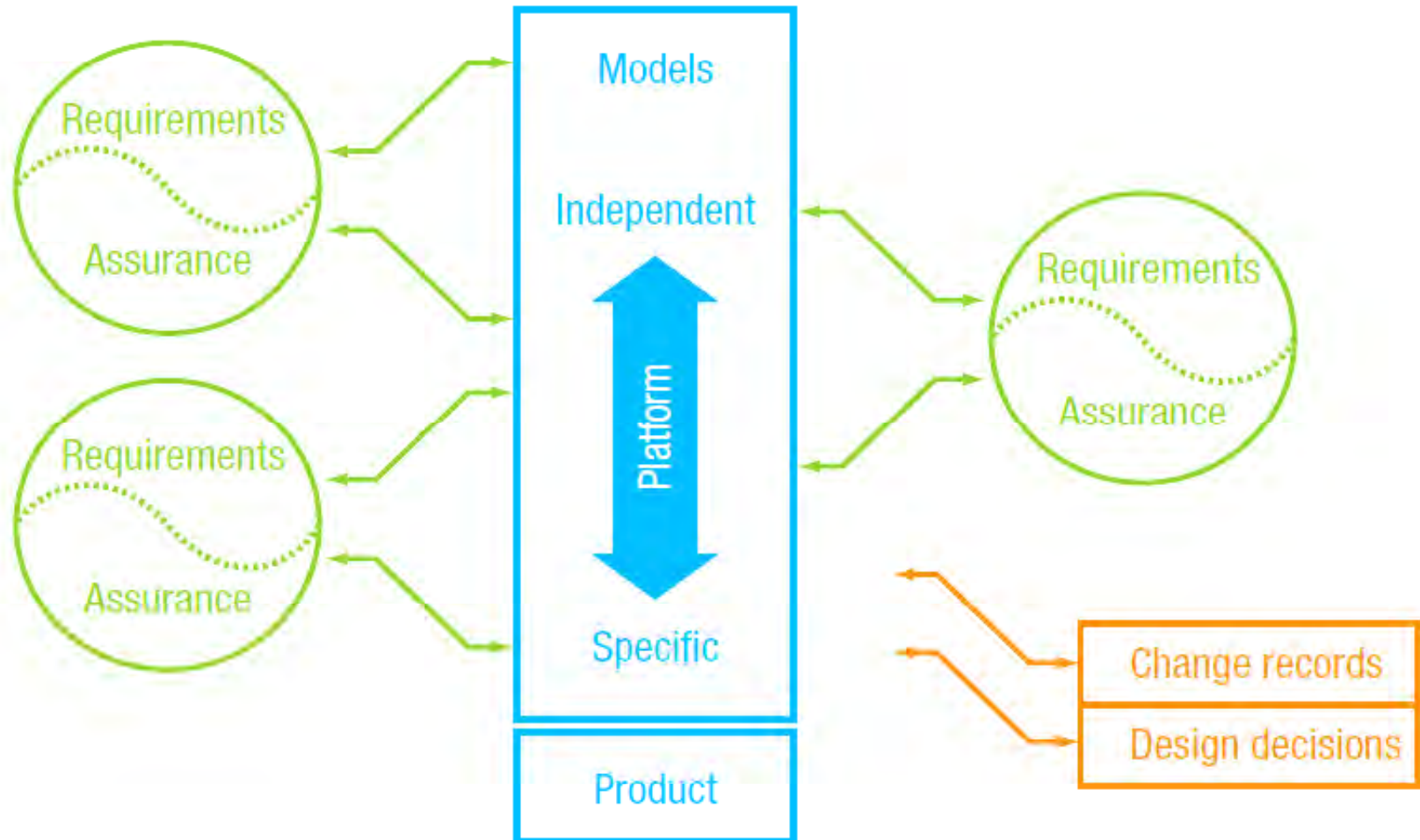


- A framework for analyzing and selecting approaches

- The Hitchins' 5-layer model



● Development artifact relationship diagram



● Matching the development approach to the project

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Formality	Industry	Level	RDD	MDD	TDD
Informal	Consumer Products	OEM	[Highly to Somewhat applicable]	[Somewhat to Occasionally applicable]	[Occasionally to Not applicable]
		Supply chain			
		Detailed design			
	Mobile Networks / Devices	OEM	[Highly to Somewhat applicable]	[Somewhat to Occasionally applicable]	[Occasionally to Not applicable]
		Supply chain			
		Detailed design			
Power grid	Prime	[Highly to Somewhat applicable]	[Somewhat to Occasionally applicable]	[Occasionally to Not applicable]	
	Supply chain				
	Detailed design				
Aerospace & Defense	Prime	[Highly to Somewhat applicable]	[Somewhat to Occasionally applicable]	[Occasionally to Not applicable]	
	Supply chain				
	Detailed design				
Formal	Nuclear Industry	Prime	[Highly to Somewhat applicable]	[Somewhat to Occasionally applicable]	[Occasionally to Not applicable]
		Supply chain			
		Detailed design			

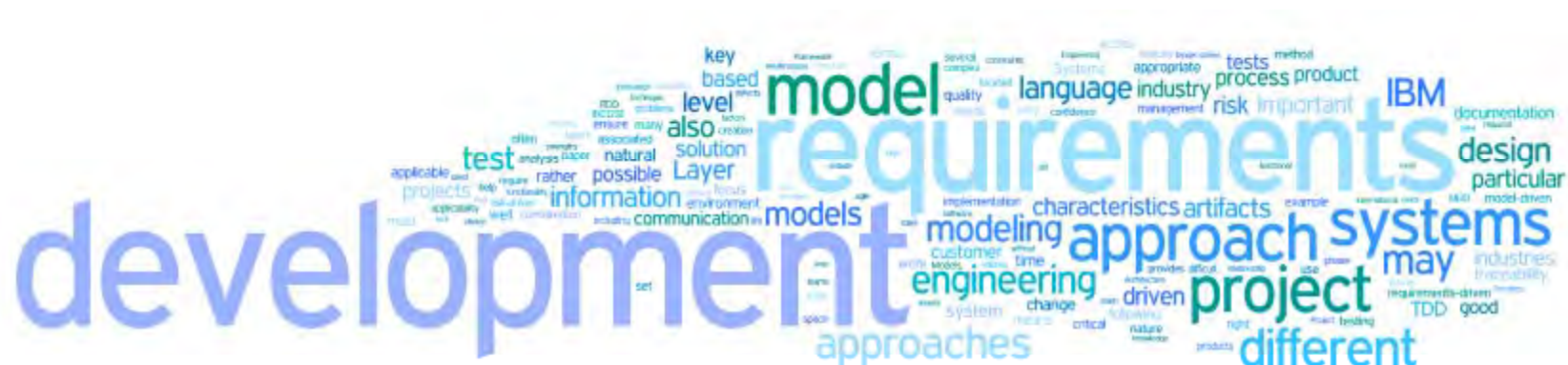


Summary

- There is no single 'right' answer
- The development approach is a means to an end

But...

- Predictable delivery results from minimizing risks
- The right approach is the one that best manages and mitigates risk



Glossary

- MDD Model-driven development
- RDD Requirements-driven development
- TDD Test-driven development