

# In Defence of the Incremental Approach

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# Introduction

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## Incremental Approach

- Definition
- Implementation
- Risk mitigation



# Content

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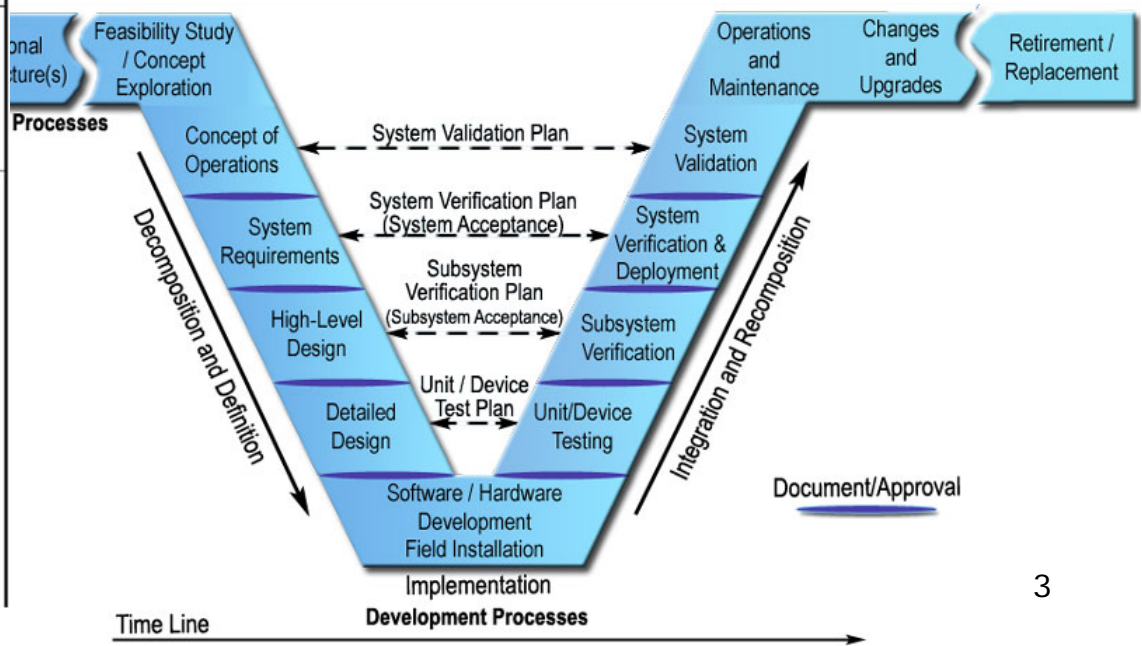
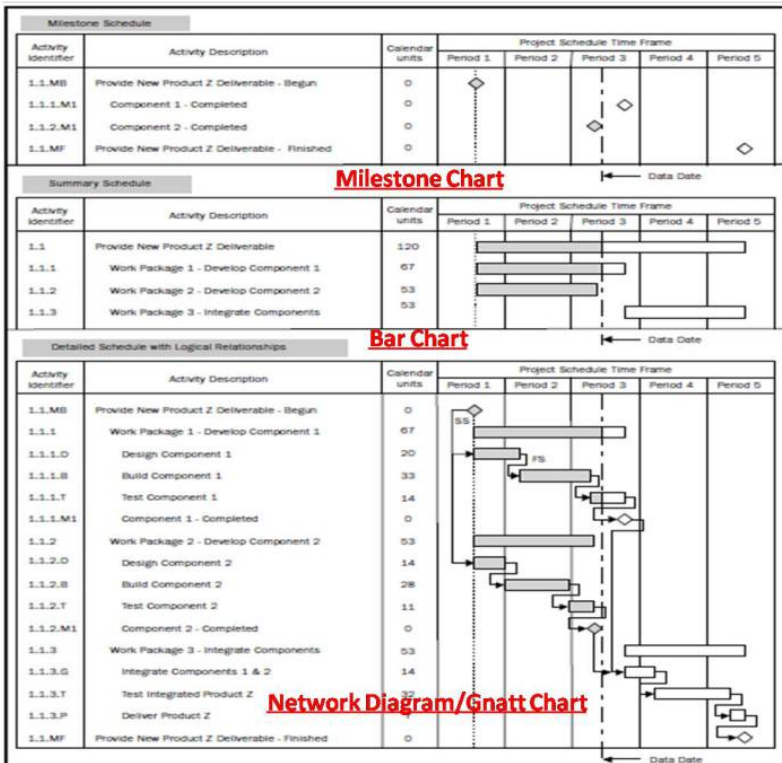
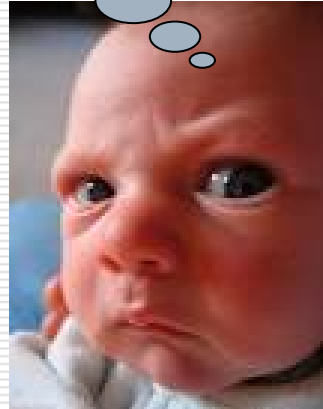
- Opposition
  - Cognitive Psychology
  - Definition
  - Checklist
  - Illustrations
- 



# Opposition

- Engineers
- Managers

I am NOT an ugly baby!



# Cognitive Psychology

- ❑ Human Mind

- ❑ Limited capacity

*Serial?*

*parallel?*

- ❑ Incremental approach manages the limitations



# Definitions

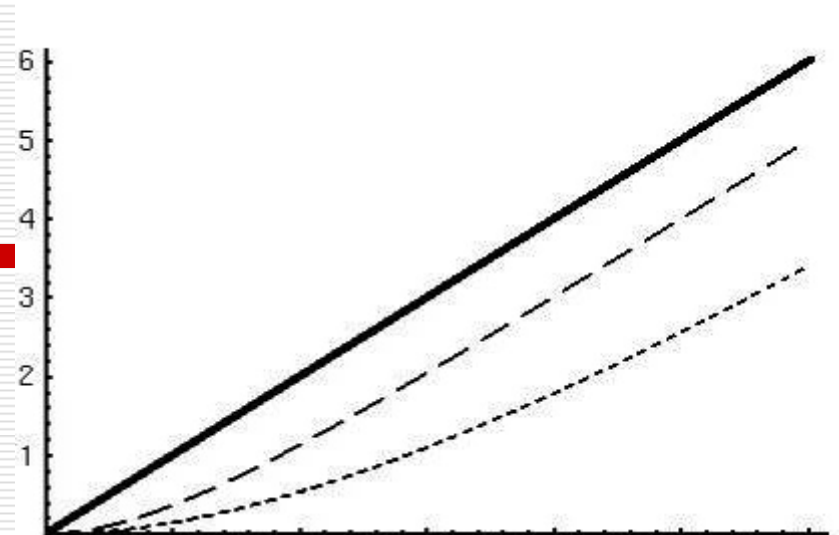
- ❑ Colloquial
- ❑ As-presented
- ❑ Steps too large
- ❑ Steps too small



# Implementation

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- Two paths:
  - Limit the risk
  - Single, slow variable
- Support next step





# Five considerations

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- Non-linear
  - Single variable
  - Tolerable consequence
  - Efficiency - Maximise increment
  - Data for subsequent step
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# Broader Issues

- ❑ Fall-back position
- ❑ Safety Management System



# Case Study #1

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- ❑ Fallback position for acceptance testing

## Acceptance Tests



# Case Study #2

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- ❑ Singular small step
- ❑ Data for subsequent step



# Conclusion

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## **Incremental Approach**

- Manageable complexity
- Tolerable risks
- Efficient implementation
- Safety Management System

# References

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- ❑ Conscious Entities (2014). Retrieved from: <http://www.consciousentities.com>
- ❑ Dennett, D.C. (1987). *The Intentional Stance*. USA: Massachusetts Institute of Technology.
- ❑ Hancock, P.A. (1999). *Human performance and ergonomics*. San Diego, California: Academic Press.
- ❑ McLeod, S. A. (2007). Cognitive Psychology. Retrieved from <http://www.simplypsychology.org/cognitive.html>
- ❑ McLeod, S. A. (2008). Information Processing - Simply Psychology. Retrieved from <http://www.simplypsychology.org/information-processing.html>
- ❑ Tombu, M.N., Asplund, C.L., Dux, P.E., Godwin, D., Martin, J.W. & Marois, R . (2011). A Unified Attentional Bottleneck In The Human Brain. *Proceedings of the National Academy of Sciences of the United States*, 108(33), p.13426(6). doi: 10.1073.1103583108