# MODEM Impact on NAF Users

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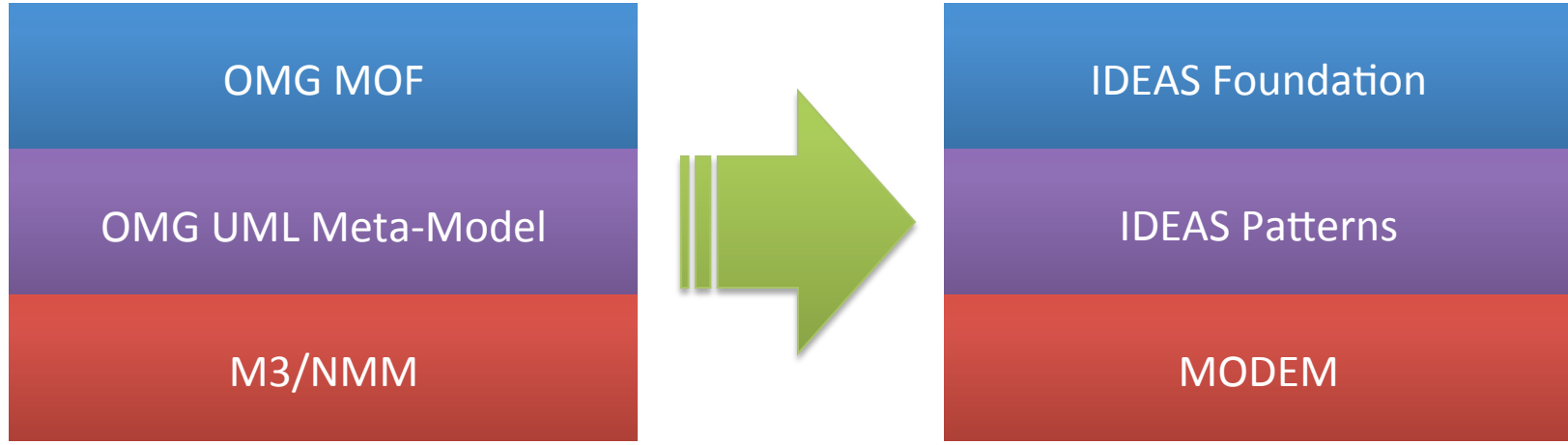
What is the impact on existing NAF architectures and tools if MODEM is adopted as the new meta-model ?

- MODEM is a re-engineering of M3/NMM

| OMG MOF | | IDEAS Foundation |
|---|---|---|
| OMG UML Meta-Model | → | IDEAS Patterns |
| M3/NMM | | MODEM |

# Details of Impact Analysis

- If the tool used is a true NMM implementation and the architecture follows the NMM approach then little impact

- But there are few truly NMM compliant tools

- And then there's Ch4
  - Seems to bear little resemblance to NMM
  - Odd bits of (old) DoDAF
  - Odd bits of (now defunct) Ch3

- If the tool / architecture follows Ch4 then there may well be impact
  - Significant re-engineering of the tool
  - Legacy architecture likely to be non compliant

# Impact Probability

| Architect used:<br><br>Tool based on: | Chapter 4 | Chapter 5 (NMM) |
|---|---|---|
| Chapter 4 | Significant compatibility issues. Architectures and tools likely to require re-work. | Tool will have to be re-developed. Architect is likely to have produced a non-compliant (NMM) architecture without even knowing. |
| Chapter 5 (NMM) | Tools should have hopefully kept the architect on the straight-and-narrow. May still need some re-work to architectures. | Any issues likely to be cosmetic or syntactic. |

- …is where the problem is
- The documentation is based on DoDAF v1
  - …with a bit of MODAF 1.1
  - …and one or two NMM compliant examples
  - …but a whole load more non-compliant examples
- Misses the strategic-logical-physical split
  - Even though that was key to DoDAF v1
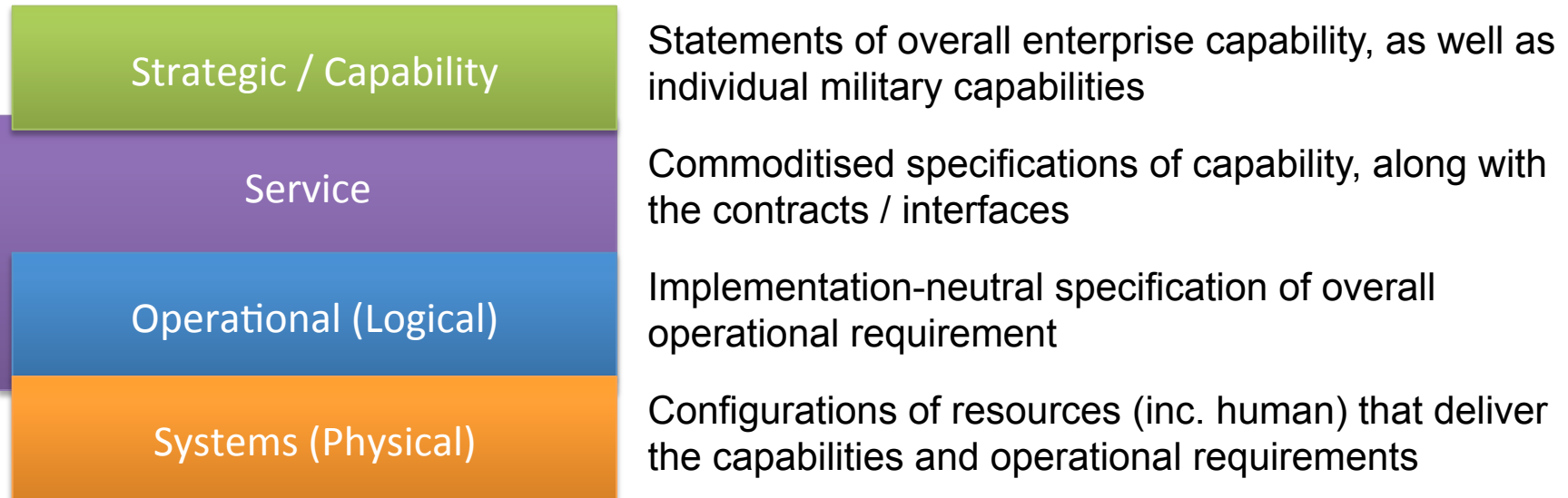
# We are where we are

- There's no-one to blame for Ch4
  - NATO nations / NCIA did their best with limited input material
  - Against a moving target
- MOD has offered the latest MODAF documentation
  - Much better fit with NMM
  - …and therefore with MODEM…obviously
- At least we know where the problems are in Ch4

# [Ch4 Issue] Framework Structure

- MODAF and NAF are based on a four tier structure:

| | |
|---|---|
| **Strategic / Capability** | Statements of overall enterprise capability, as well as individual military capabilities |
| **Service** | Commoditised specifications of capability, along with the contracts / interfaces |
| **Operational (Logical)** | Implementation-neutral specification of overall operational requirement |
| **Systems (Physical)** | Configurations of resources (inc. human) that deliver the capabilities and operational requirements |

- This is not reflected in Ch4
  - In fact, Ch4 contradicts this
  - If architectures are based on Ch4, the wrong elements may be used in certain views
  - However, with a good tool, data may still be correct

# [Ch4 Issue] Examples

- Any tool vendor that is unable to implement NMM directly (i.e. any non-UML vendor, and one or two UML vendors) will probably base their implementation on the examples in Ch4

- The running example is pretty good and perhaps should have been used in Ch4

- Ch4 includes excerpts from Ch3
- Ch3 has been recommended for deletion
  - Ch3 introduced its own meta-model
  - Not aligned (at all) with NMM
  - May now be re-written
- Some of the Ch3 MM thinking found its way into Ch4
  - If tool vendors have based their implementation on this, there will be an issue
  - Same problem for legacy architectures

- Ch4 mandates certain ways of working that won't be any use to individual nations

- In some cases this causes no impact

- …in others it can work against the meta-model

# Minor Issues

- NAF chose not to follow IEEE1471/ ISO42010
  - MODAF did, and so did M3/NMM
  - MODEM is also based on the standard

- Some elements renamed in MODEM
  - These tend to be interconnecting elements rather than the major items

# Conclusions

- Little impact from NMM perspective

- Major issues are with Ch4 and the elements of Ch3 that still persist

- If NATO chooses not to adopt MODEM, then these issues will still exist

- Recommend fixing Ch4 as a minimum and re-write of Ch3
  - Opportunity to improve the view structure (grid)