

This presentation is from the 2008 Integrated EA Conference

The 2009 event will be held Feb 24-25

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Human Views for MODAF

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6 February 2008
Integrated EA Conference 2008

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The need for Human Views

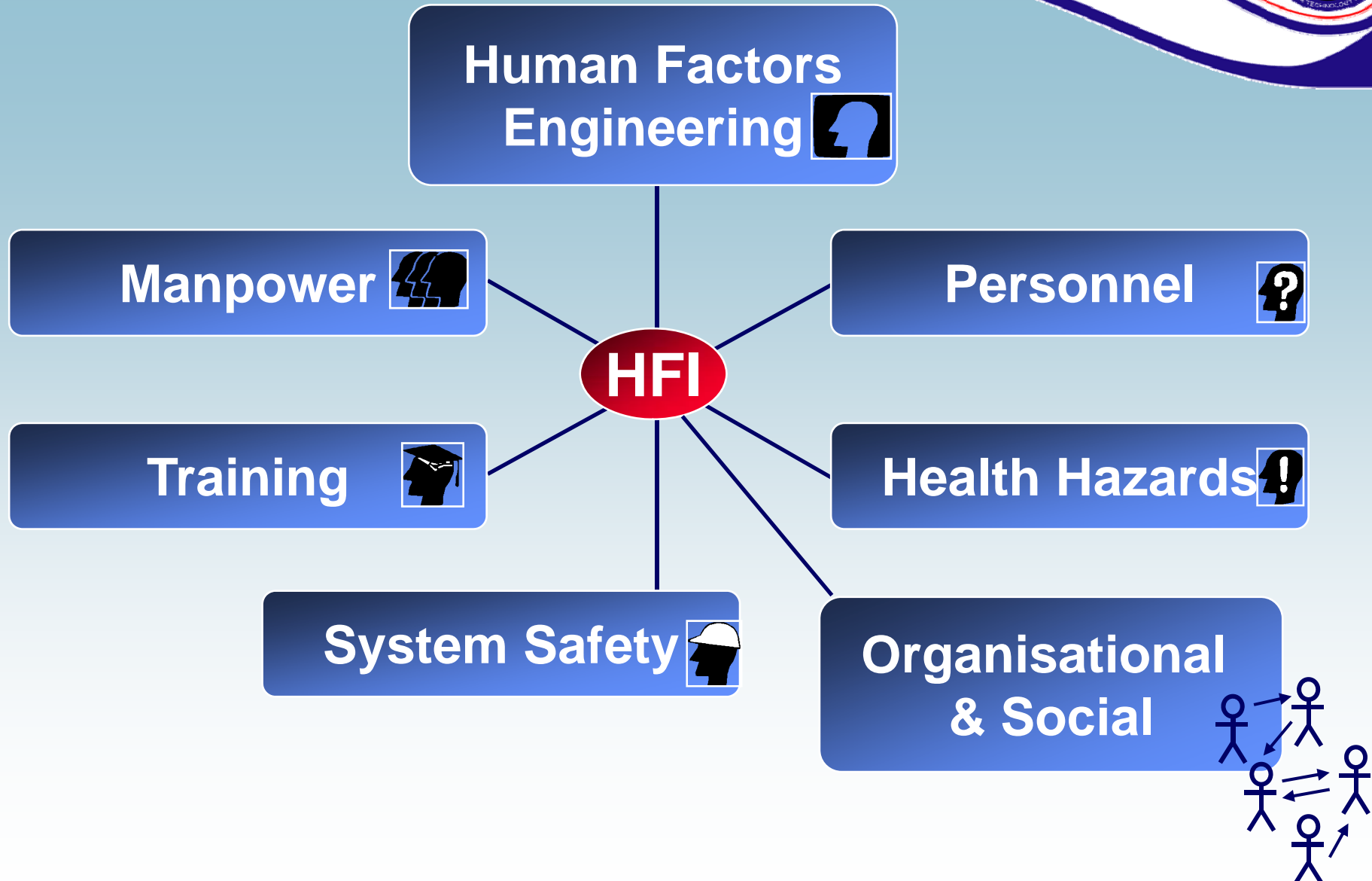


- Ensure Human Factors Integration (HFI)
- SE needs HFI
 - Enable socio-technical systems design
 - Need to specify people-related design decision areas
 - Explicitly; Correctly; Early
 - MODAF (version 1.0) has shortfalls in that
- HFI needs SE
 - Coping with design of complex systems
 - Opportunity for early involvement

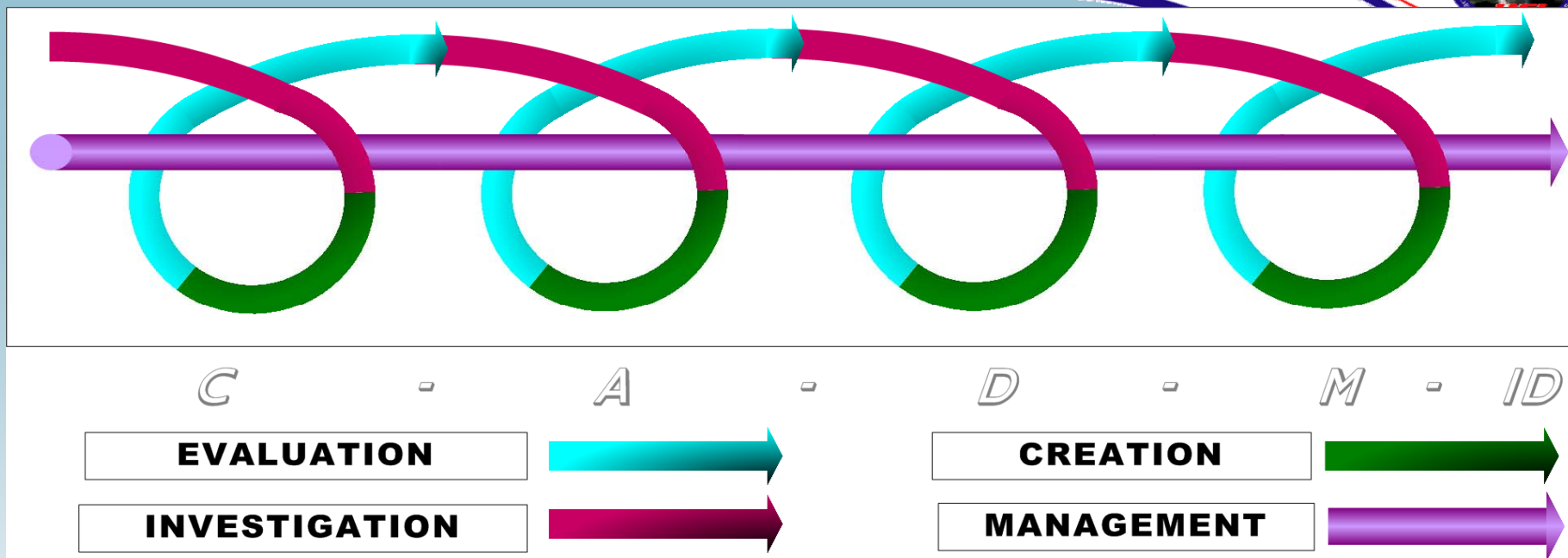


What is HFI?

HFI domains

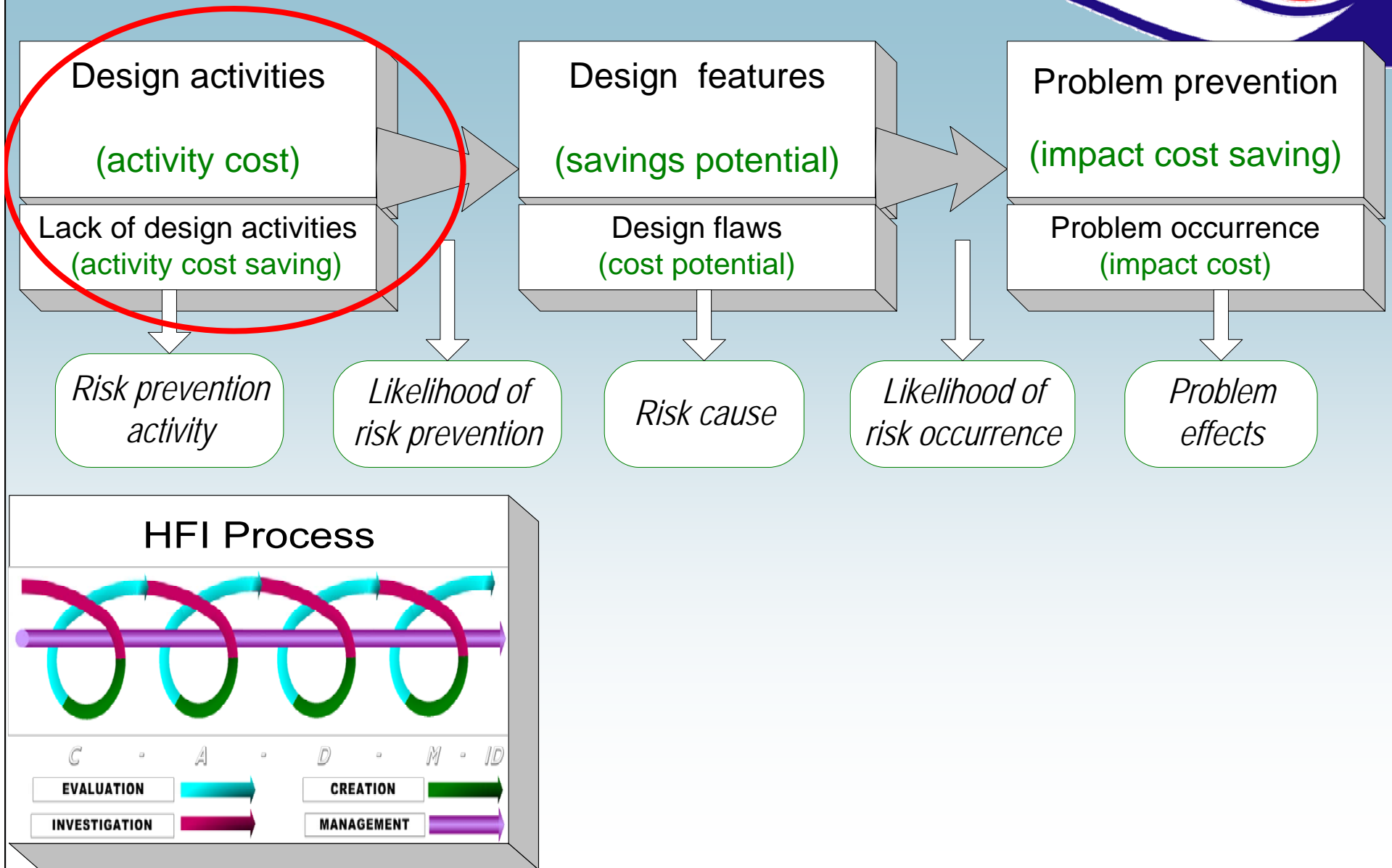


HFI Functions

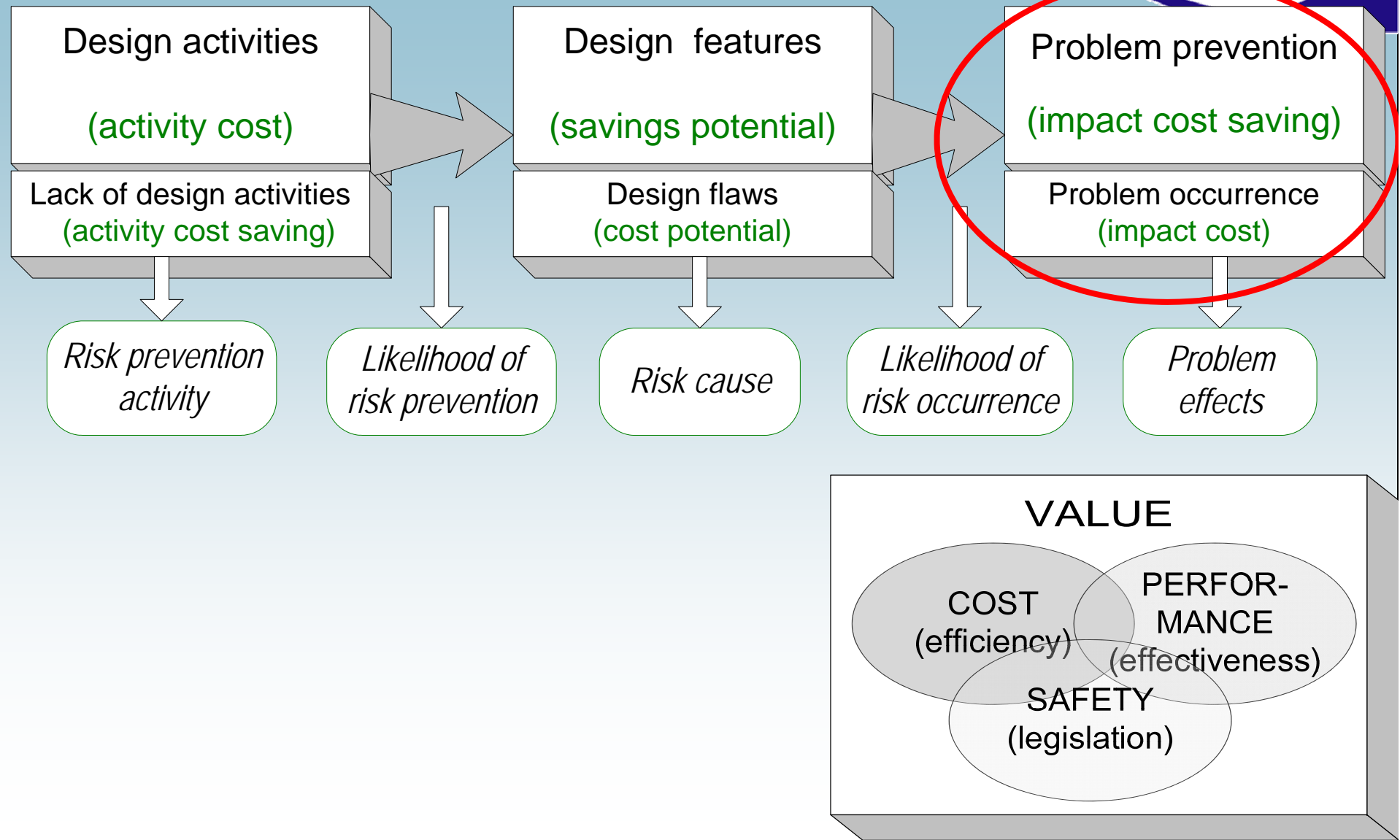


- HFI creates value through:
 - Raising potential issues and preventing risks
 - Establishing validated insight
 - Providing methods, processes, data, standards, expertise
 - Enabling user involvement
 - Undertaking a design mediation and communication role

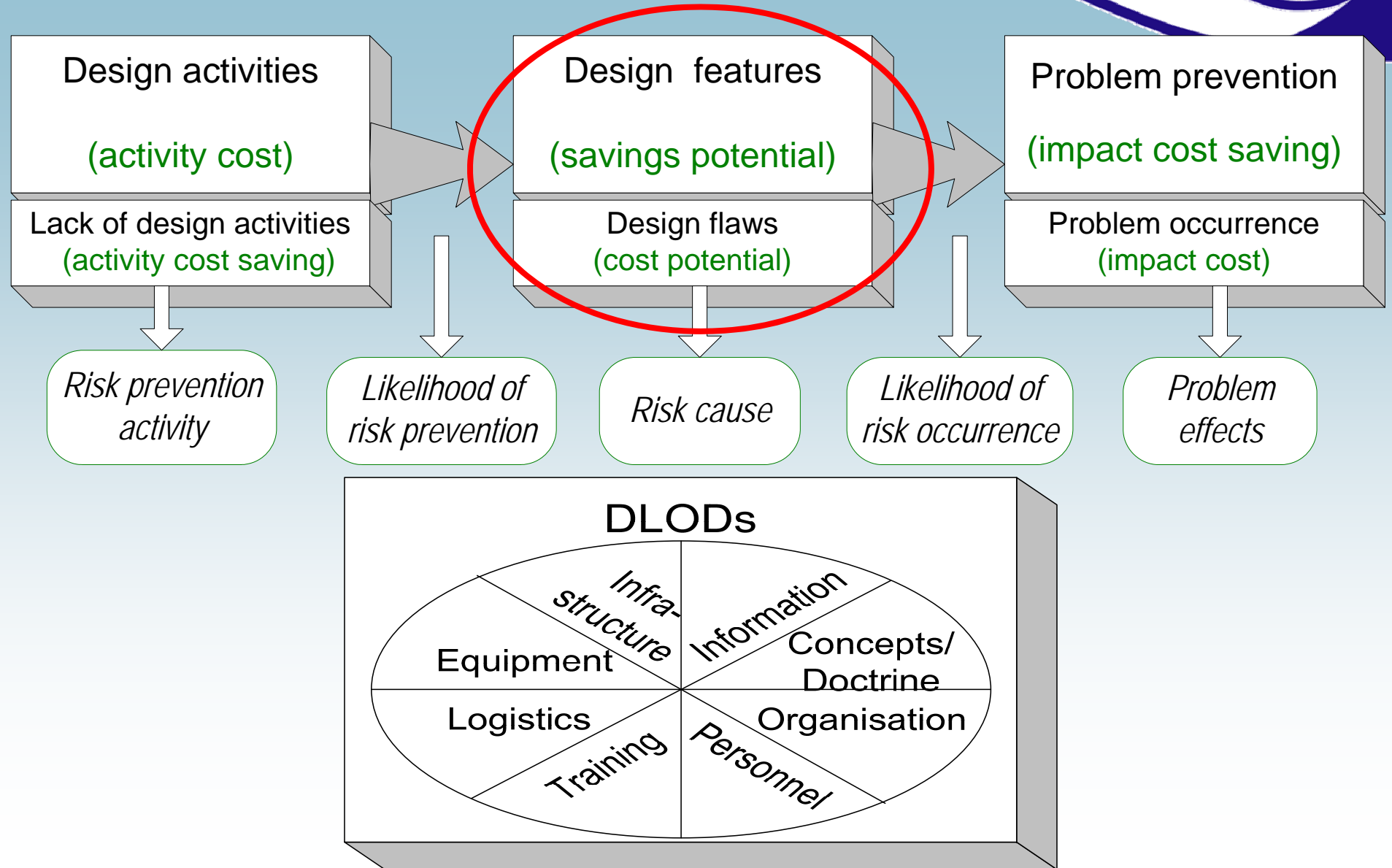
HFI Value Chain



HFI Value Chain



HFI Value Chain



What are Human Views (HVs)?



- Capturing specific human-related components of Enterprise models to enable effective HFI
 - Ensures common modelling approach
 - Helps HFI to relate to SE concepts/methods
- HFI design decision areas that can generally be perceived as formal definitions.
 - Not:
 - the 'soft' issues that may be observed
 - Informal dependencies and behaviours (they are constraints and results)
- Functional definitions
 - extending traditional meaning of 'functional' to HFI design areas

The HFI question



- “Can this person/these people,
in this job,
with this training,
perform these tasks,
using this equipment,
to these standards,
under these conditions”?

The HV question?



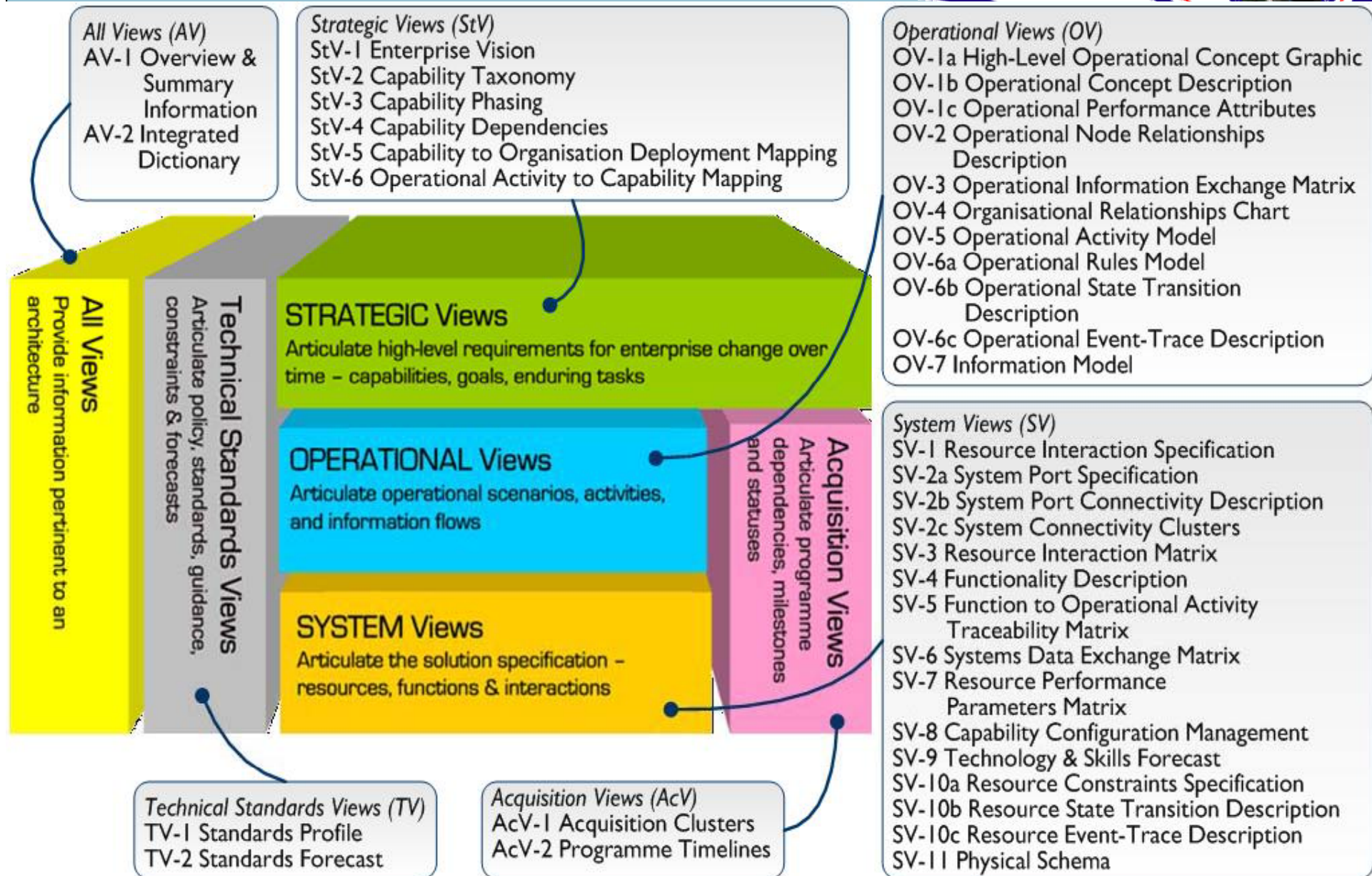
“Can these operational and capability requirements be achieved -

- grounded in these HFI objectives and standards,
- through these technological and organisational structures,
- with these human resources,
- fulfilling these functions,
- interacting as part of these organisational/task/process dependencies,
- in these roles/jobs,
- requiring these skills and characteristics,
- in these locations,
- using this equipment,
- over these timescales?”



MODAF developments

MODAF v. 1.1 (6 Viewpoints, 38 Views)

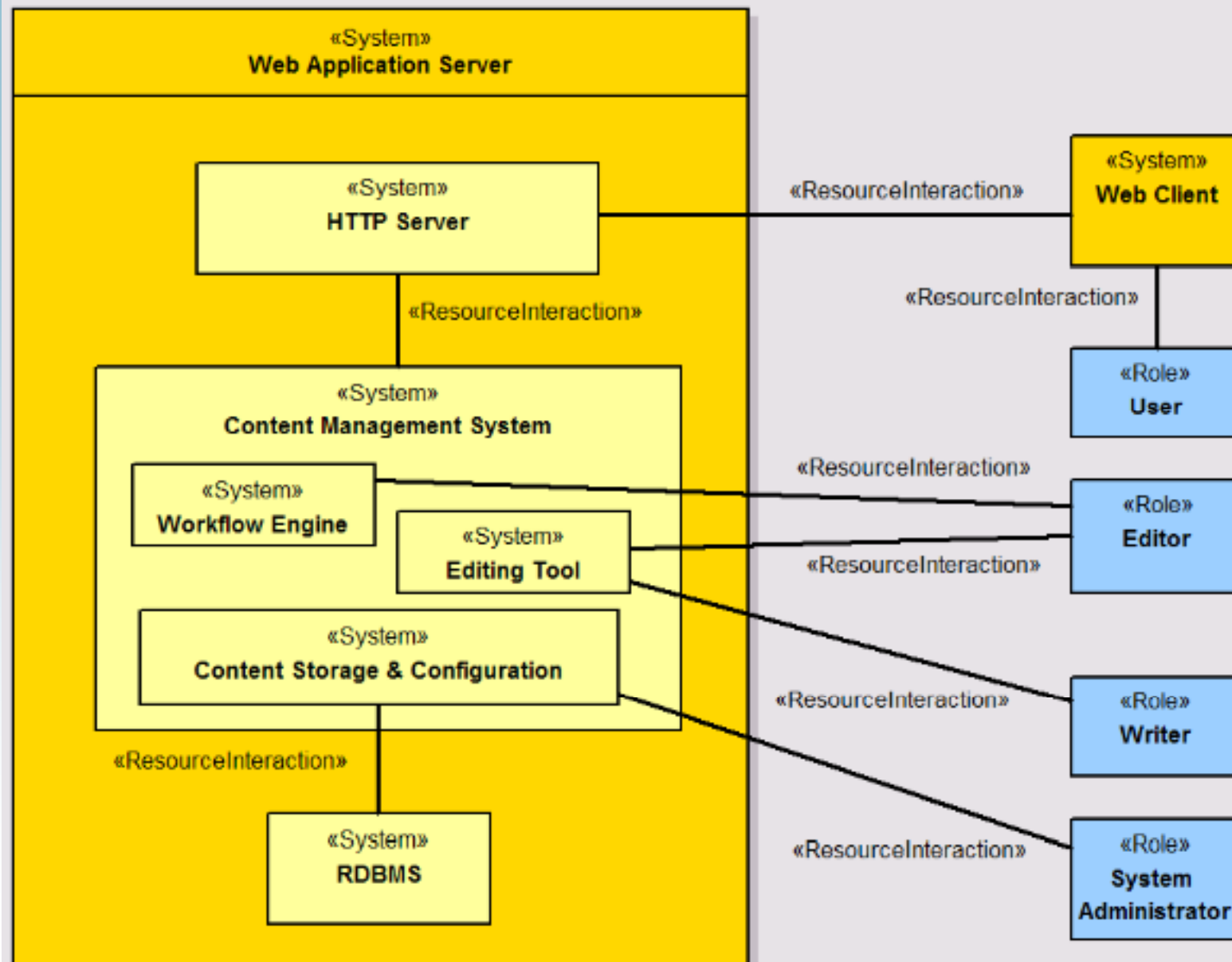


Architecture characteristics



- Separation of component concerns
- *Generic*: Conceptual Data Model / Meta Model
- *Instantiation*: Logical and Physical Data Model
- *View*: window/snapshot onto model
- Architectural products
- Viewpoints
- Levels of abstraction
 - Complexity
 - Requirements-solutions

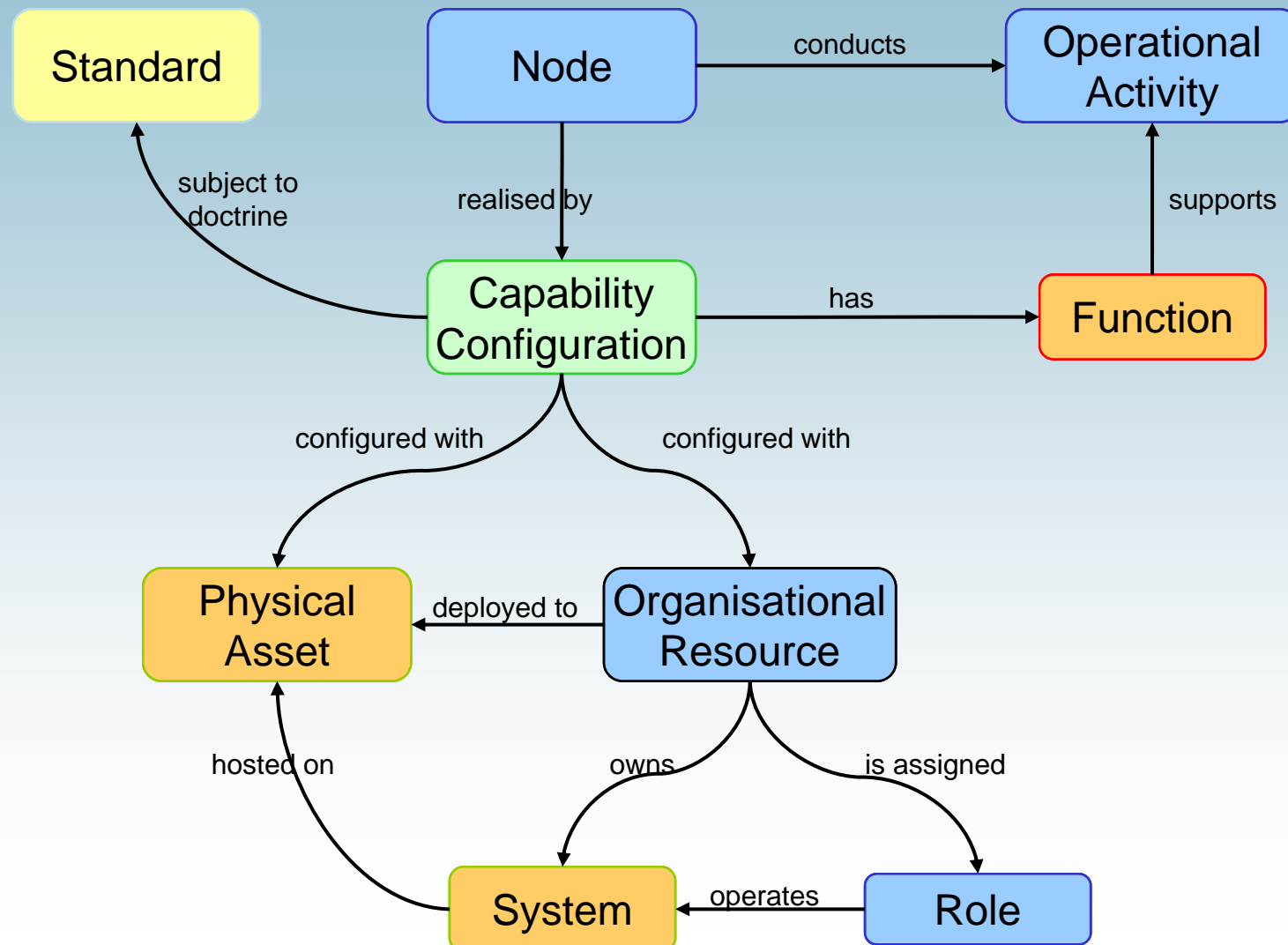
MODAF SV-1 (v 1.1)



MODAF Meta-Model: New



Capability Deployment



New MODAF v1.1 M3 definitions



- ResourceInteraction (SV-1)
 - An assertion that two <<FunctionalResource>>s interact.
 - Examples: data exchange between systems, conversations between people, people using systems
- Function (SV-4)
 - An activity which is specified in context of the resource (human or machine) that performs it.
 - Note1: Contrast with <<OperationalActivity>>, where the actor performing the activity is not known (i.e. it is just a logical node). A <<Function>> is implementation-specific.
- Role (SV-1, OV-4)
 - An aspect of a person or organization that enables them to fulfil a particular function.
- PostType (OV-4)
 - A type of point of contact or responsible person. Note that this is the type of post - e.g. Desk Officer, Commander Land Component, etc.

SOA focus in DoDAF v 1.5



Operational Activity to Services Traceability Matrix (SV-5c)

Services	Capability 1				Capability 2				Capability 3				Capability 4				Capability 5			
	Operational Activity A	Operational Activity B	Operational Activity C	Operational Activity D	Operational Activity E	Operational Activity F	Operational Activity G	Operational Activity H	Operational Activity I	Operational Activity J	Operational Activity K	Operational Activity L	Operational Activity M	Operational Activity N	Operational Activity O	Operational Activity P	Operational Activity Q	Operational Activity R	Operational Activity S	Operational Activity T
Service 1							X	X	X											
Service 2	X	X									X									
Service 3			X	X														X		
Service 4	X	X	X											X	X		X			
Service 5			X							X								X		
Service 6	X						X	X	X		X									
Service 7		X		X										X						
Service 8			X				X		X			X					X		X	X



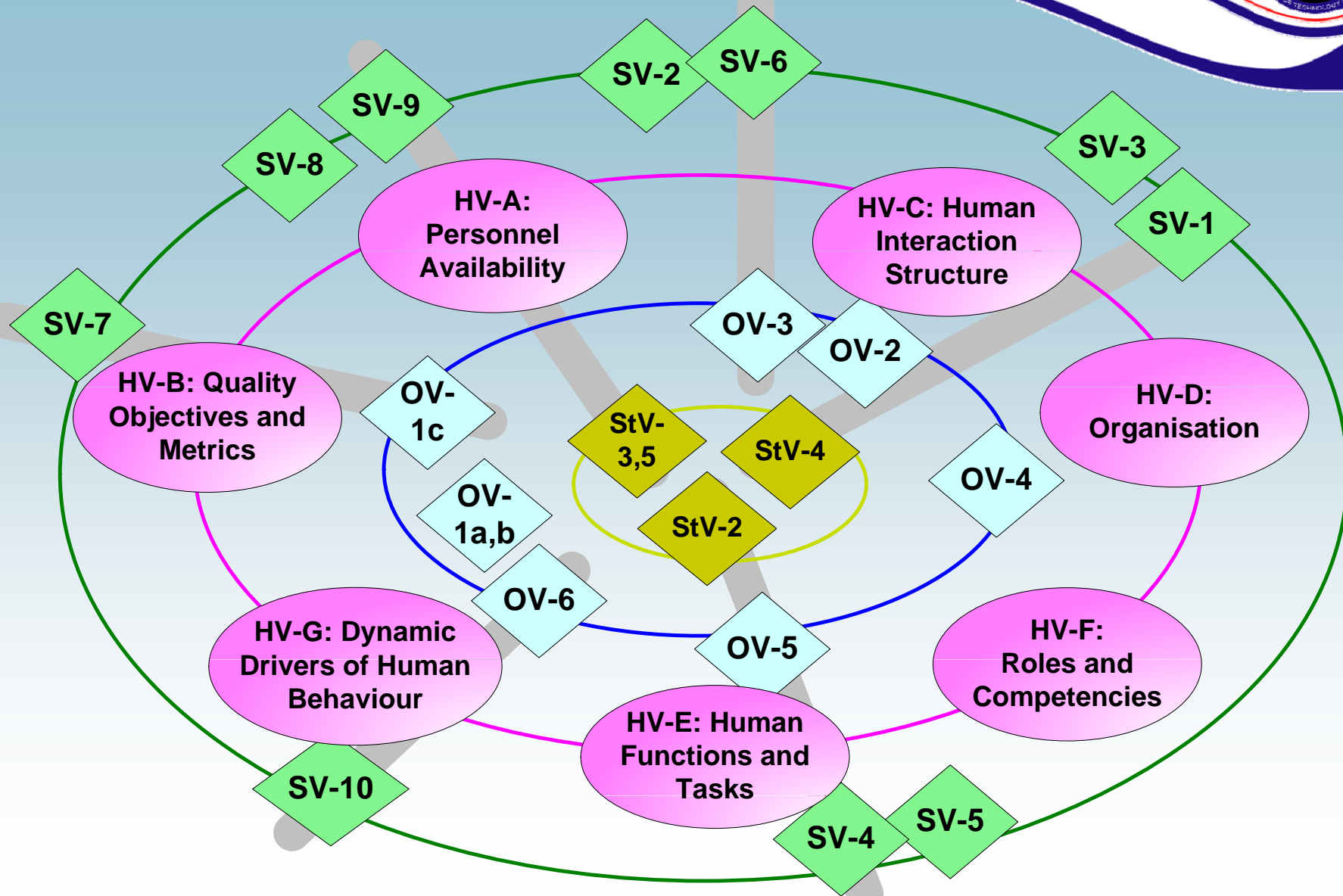
MODAF Human Views

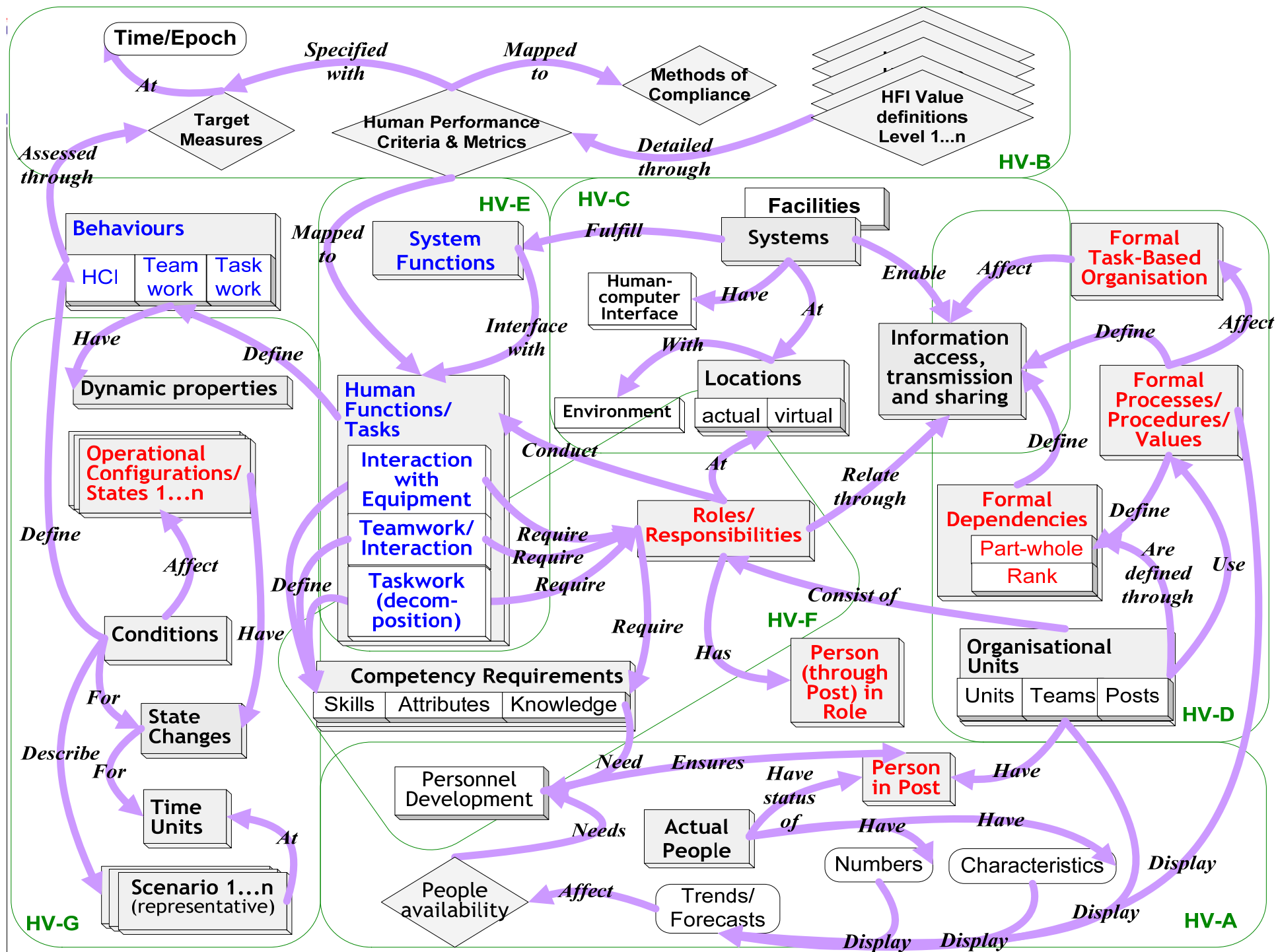
UK work: progress / plan



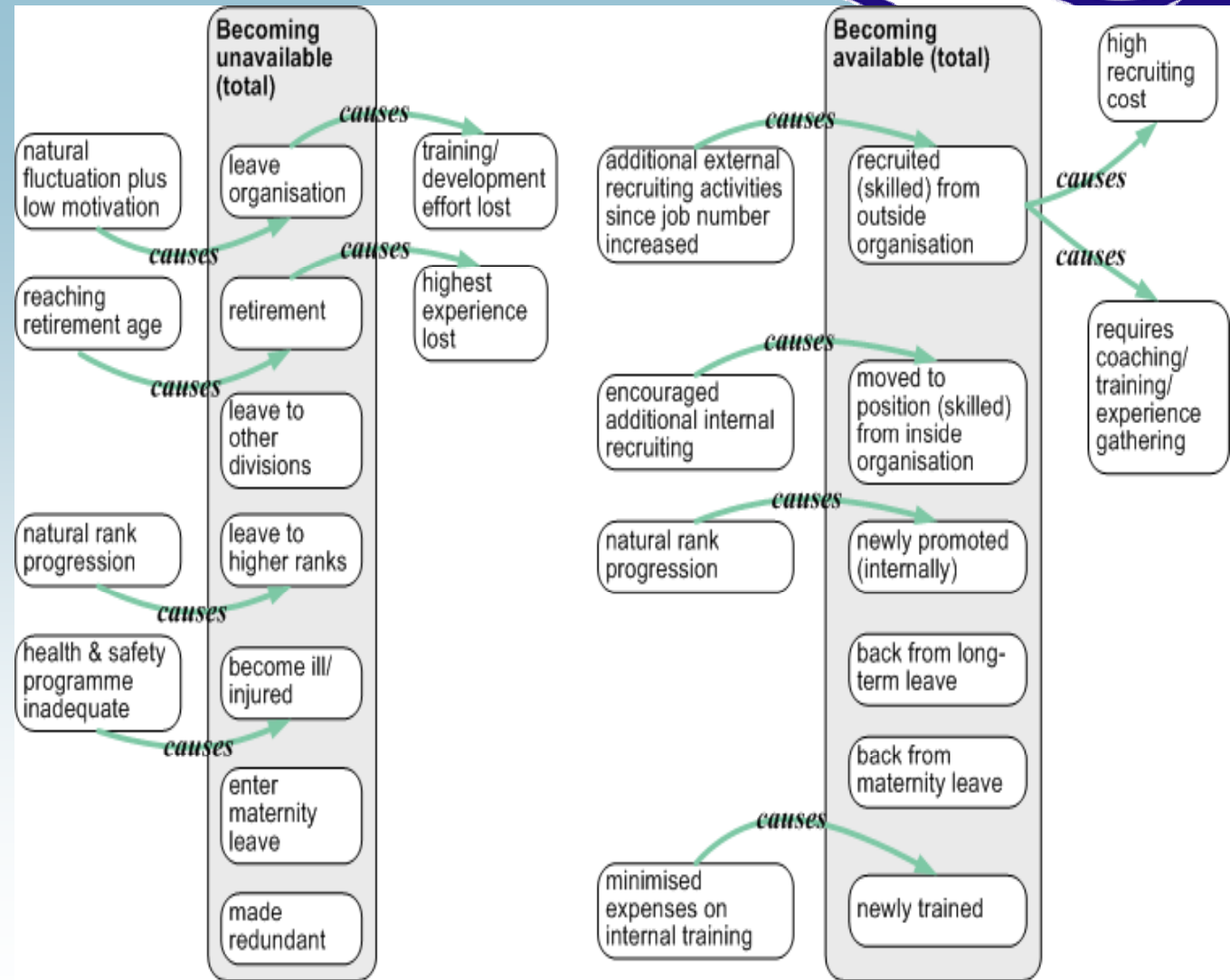
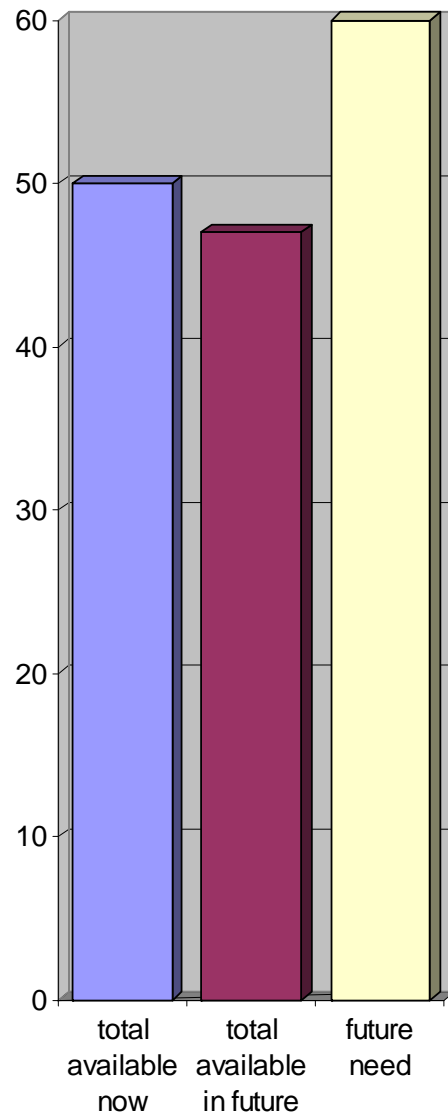
- Scoping Study end Dec 06
- HV concepts to IA 8 Feb 07
- Draft HV Handbook 12 March 07
- Input towards MODAF v1.1 30 March 07
- Stakeholder Review end July 07
- Revised HV Handbook mid Sept 07
- Published HV Handbook (Issue 1) Jan 08
- Applications and Updates ongoing

HVs between OV and SV level

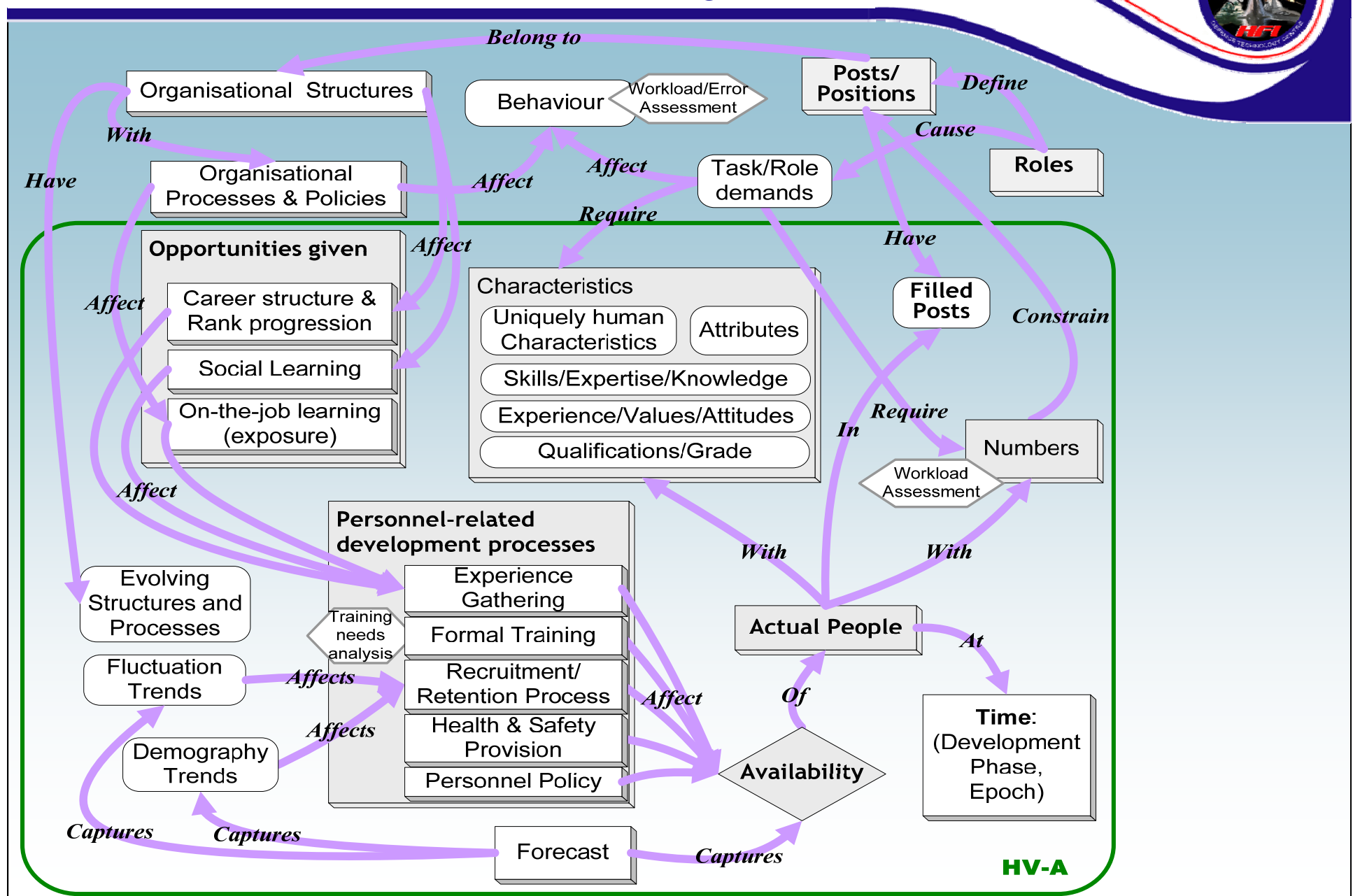




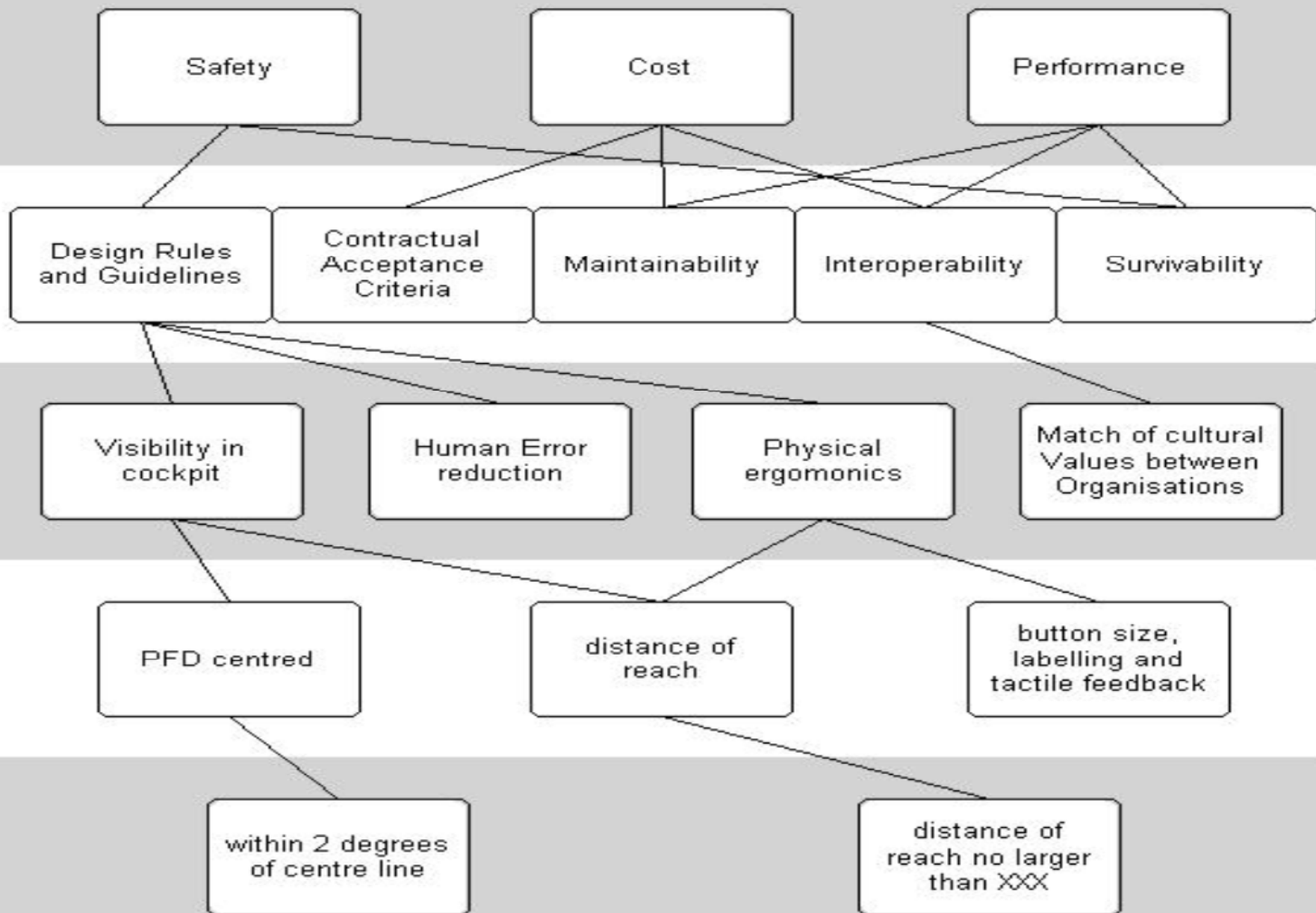
HV-A: Personnel Availability (example)



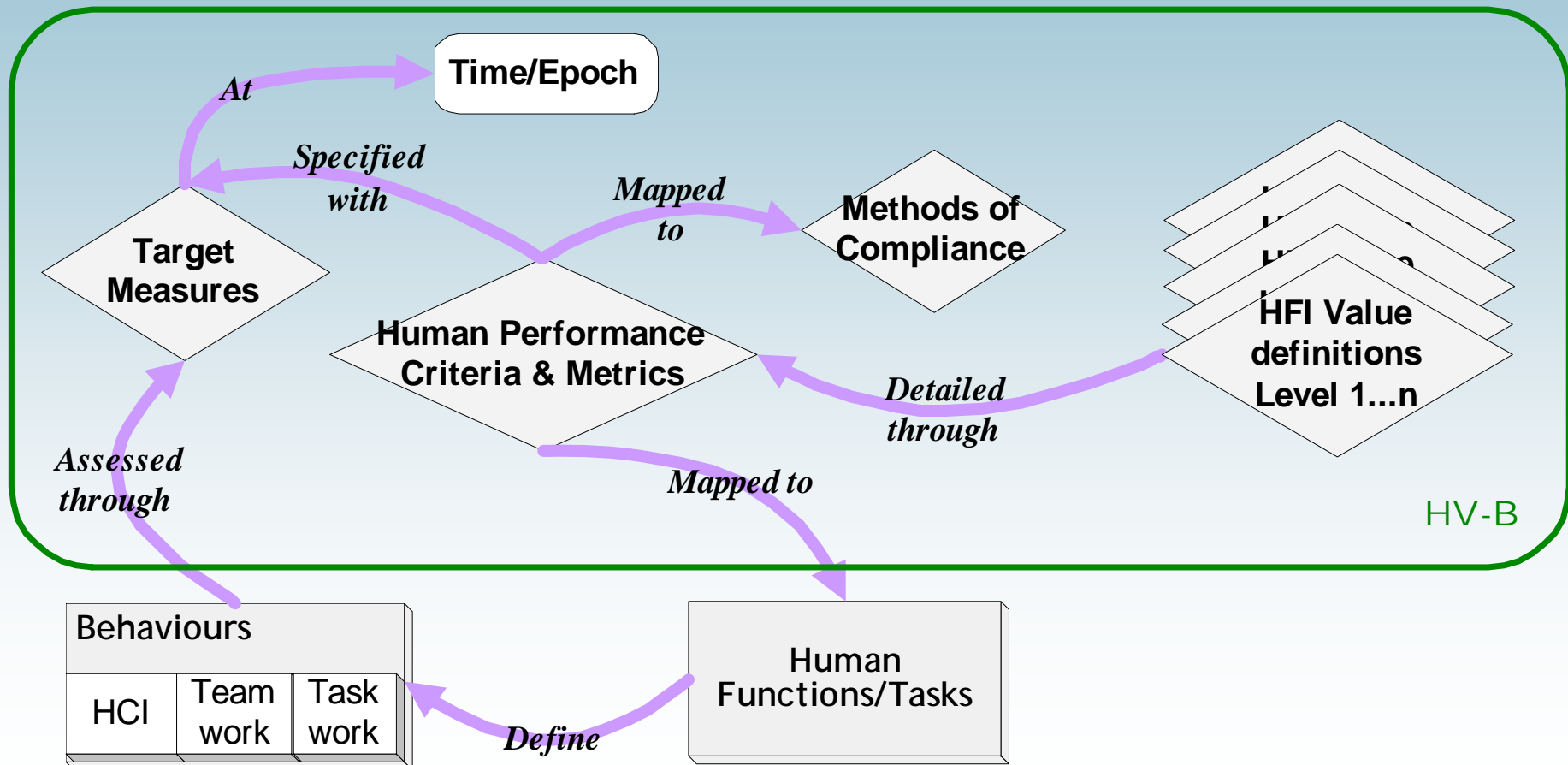
HV-A: Personnel Availability



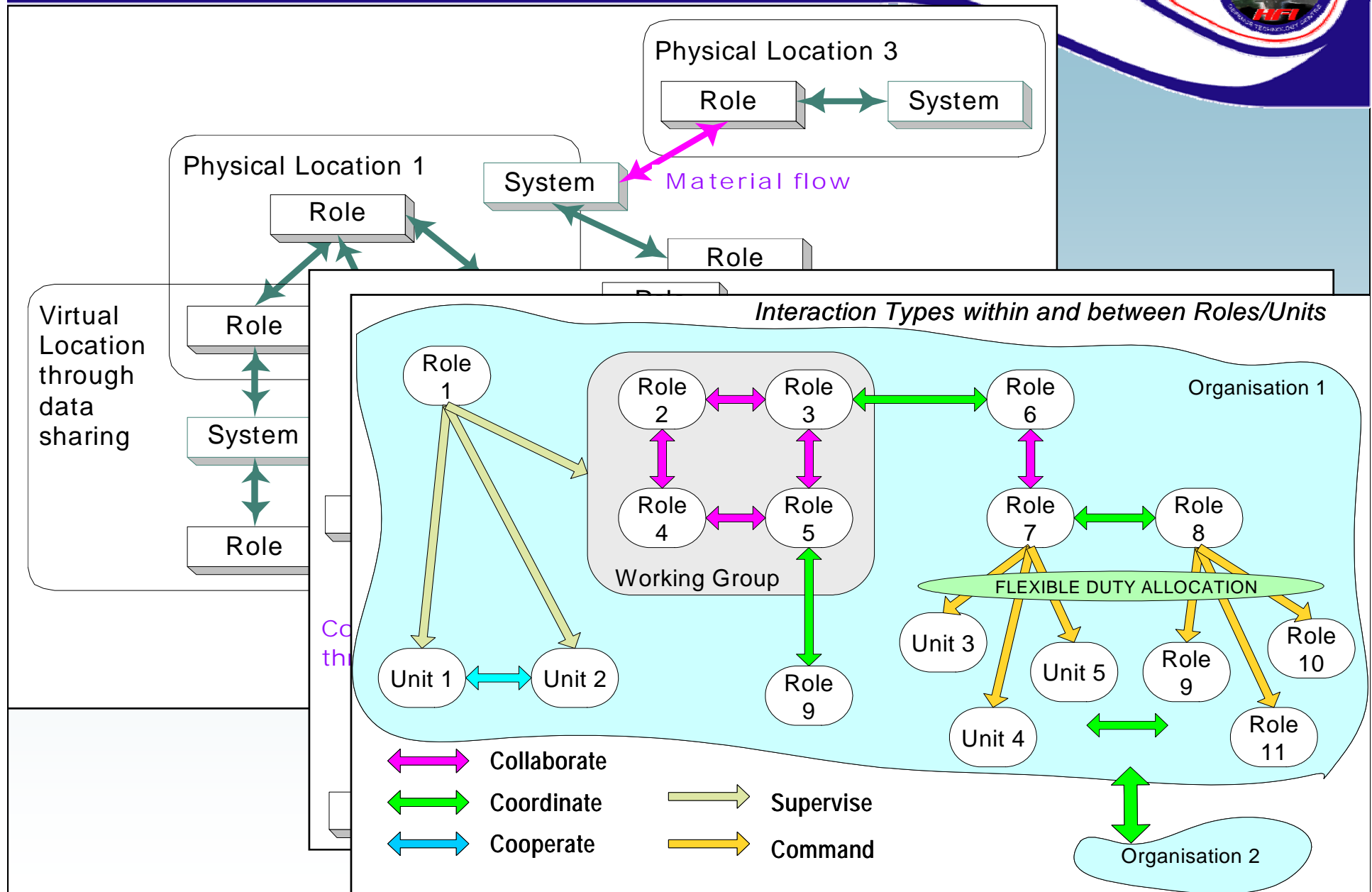
HV-B: Quality Objectives and Metrics (example)

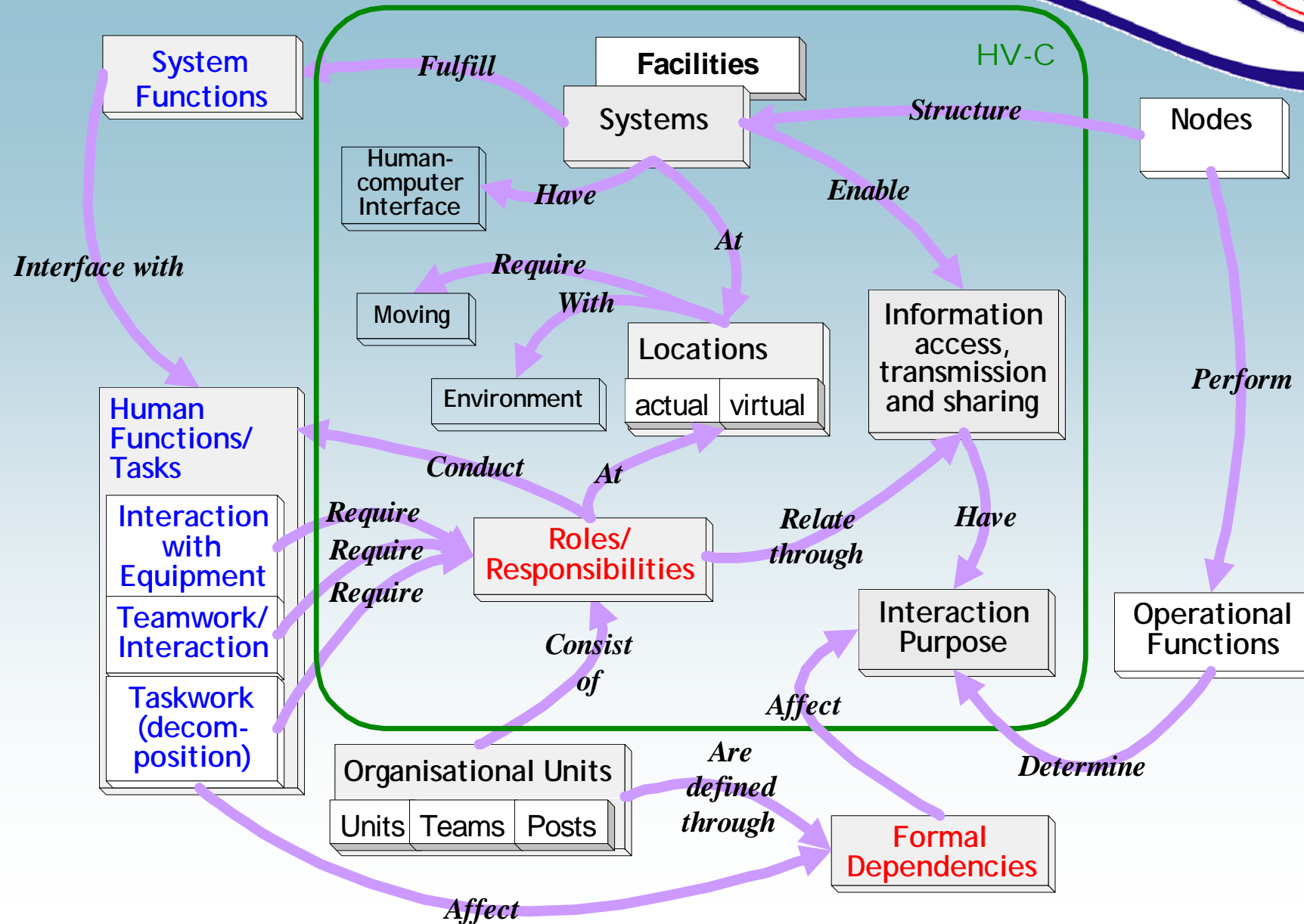


HV-B: Quality Objectives and Metrics



HV-C: Human Interaction Structure (examples)





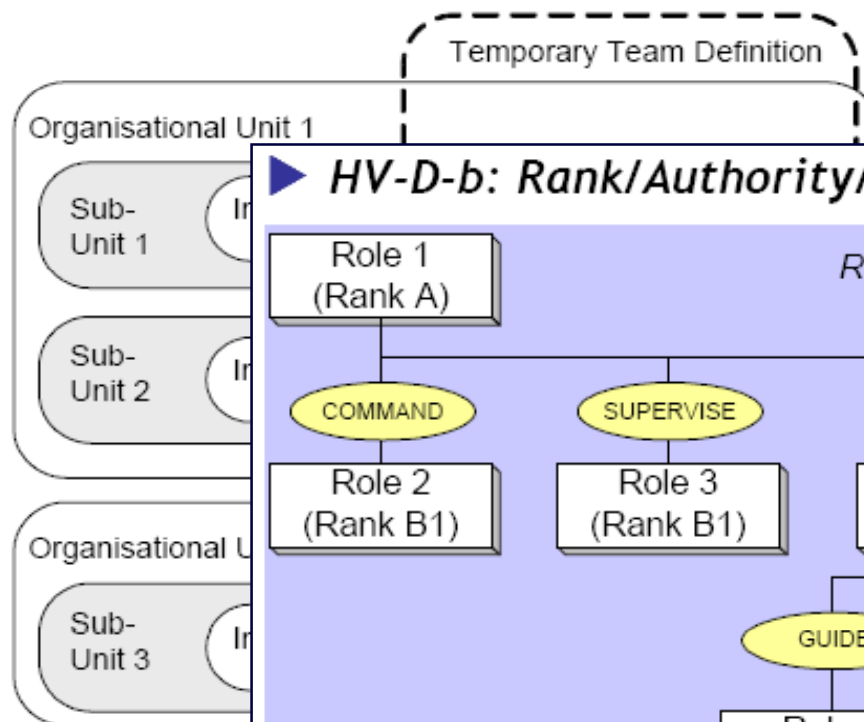
HV-D: Organisation (examples)



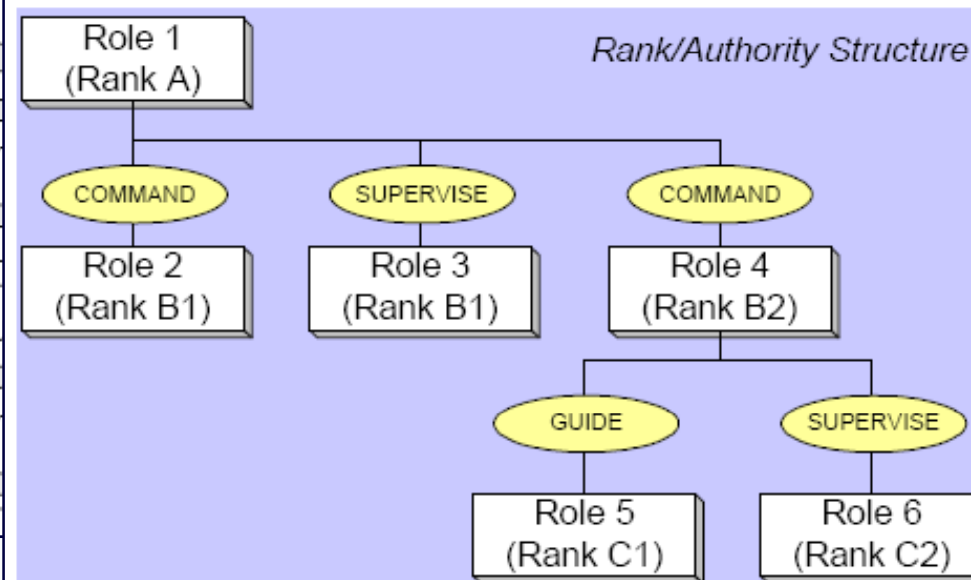
VISUALISATION

Generic

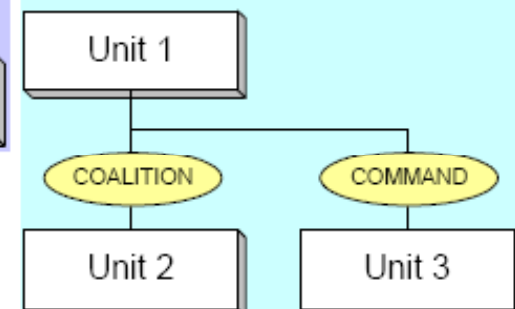
► HV-D-a: Organisational Definitions and Groupings



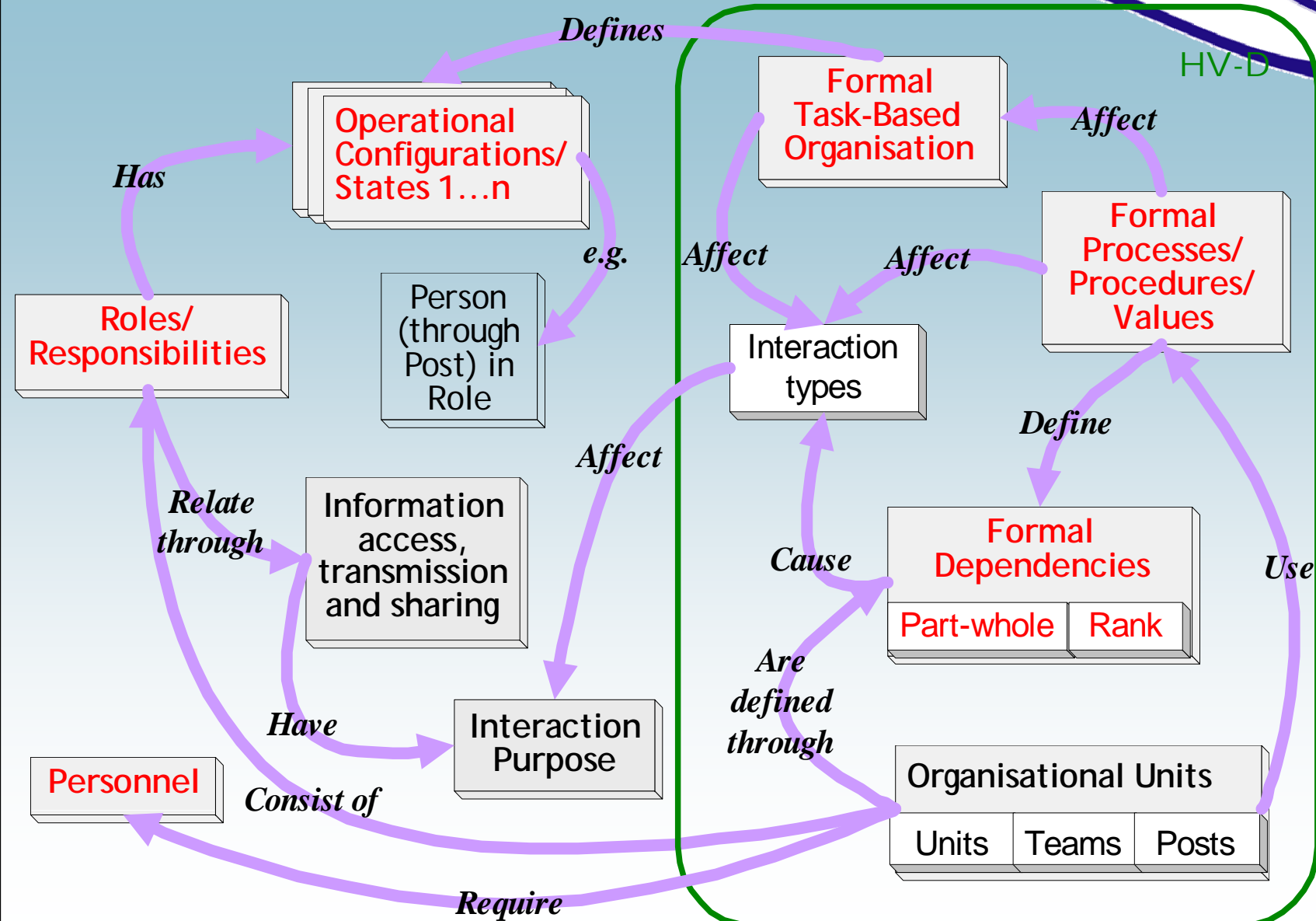
► HV-D-b: Rank/Authority/Accountability Structures



Organisational Relationship Types



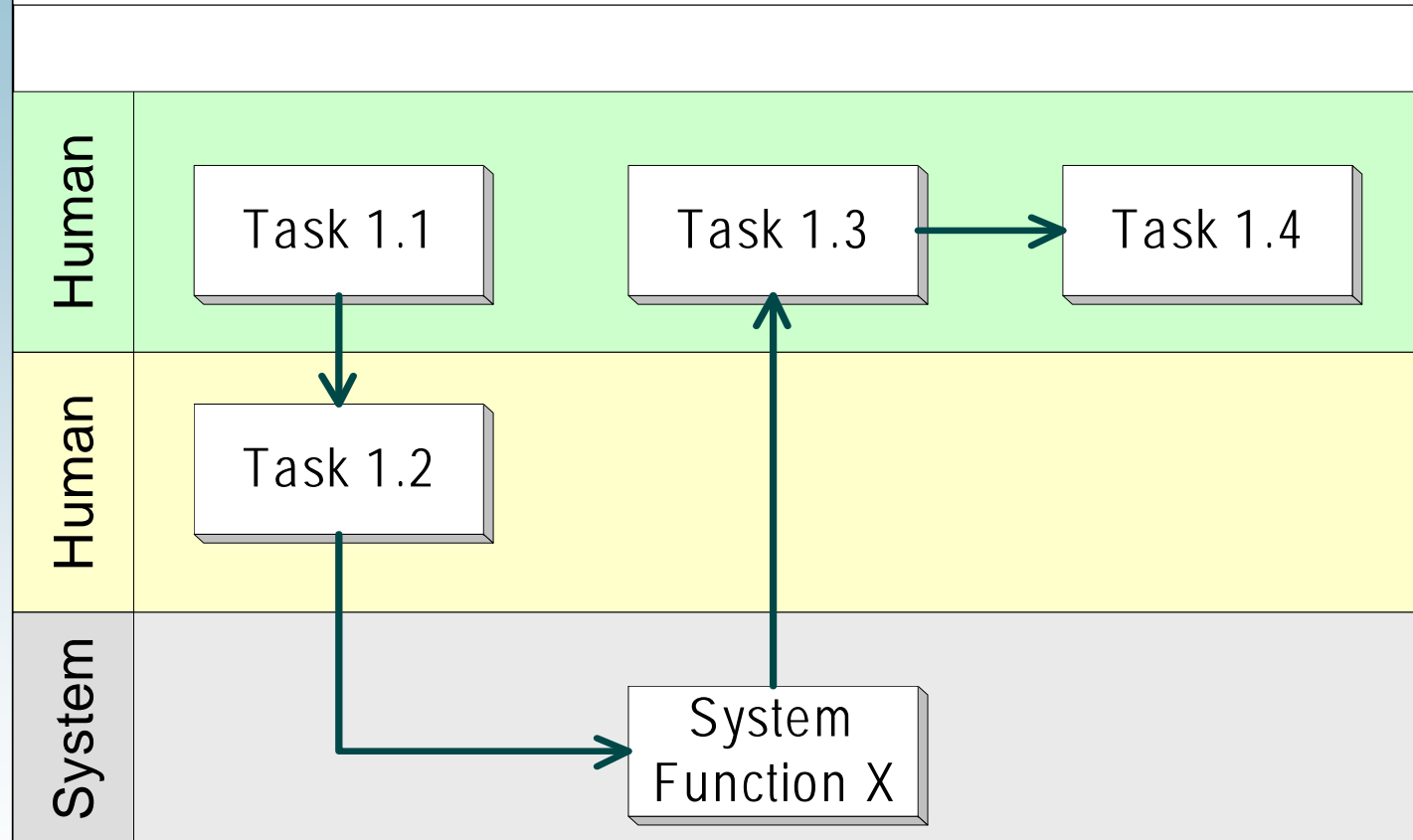
HV-D: Organisation



HV-E: Human Functions and Tasks (example)

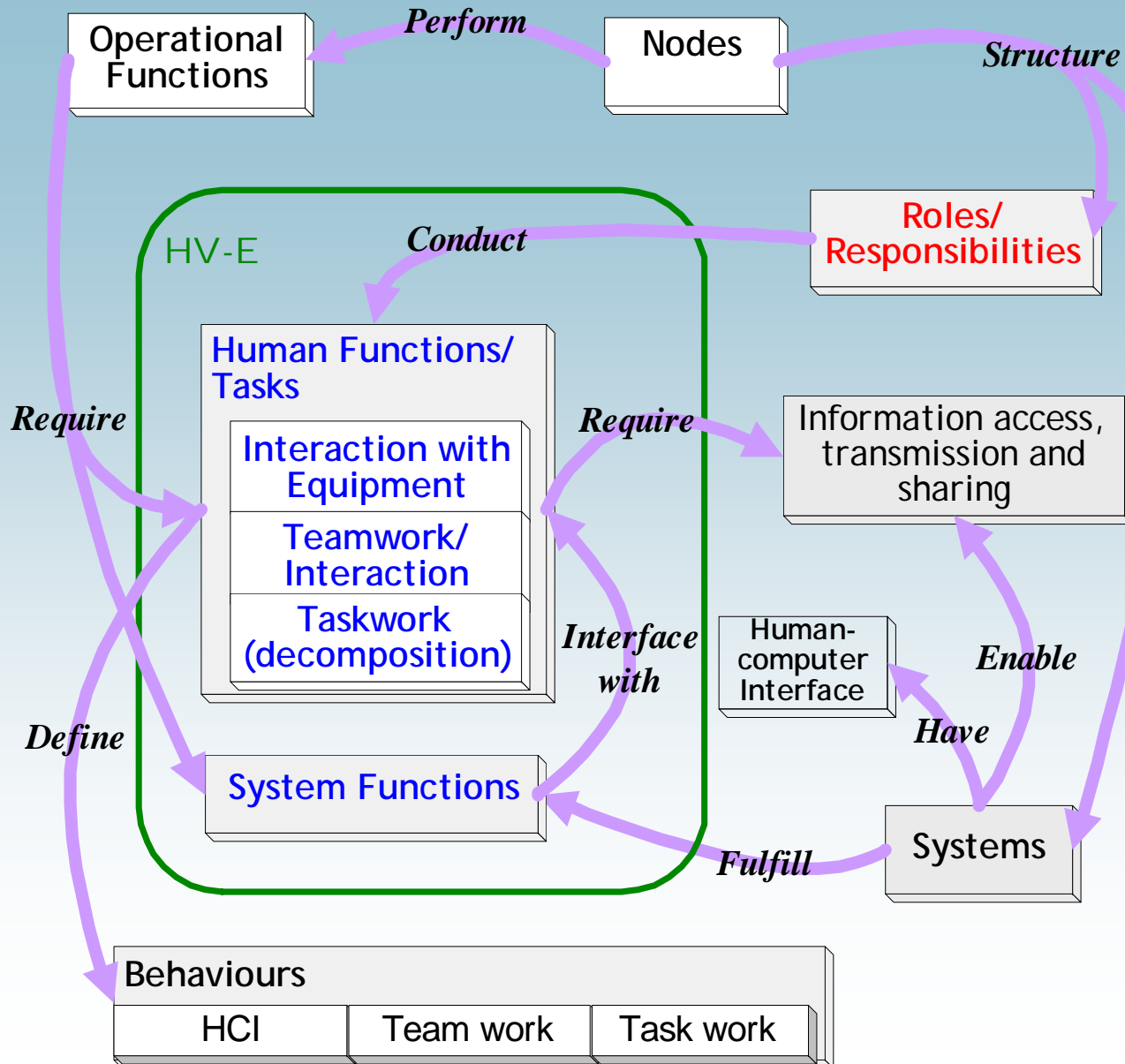


Human Task Flow for Human Function 1

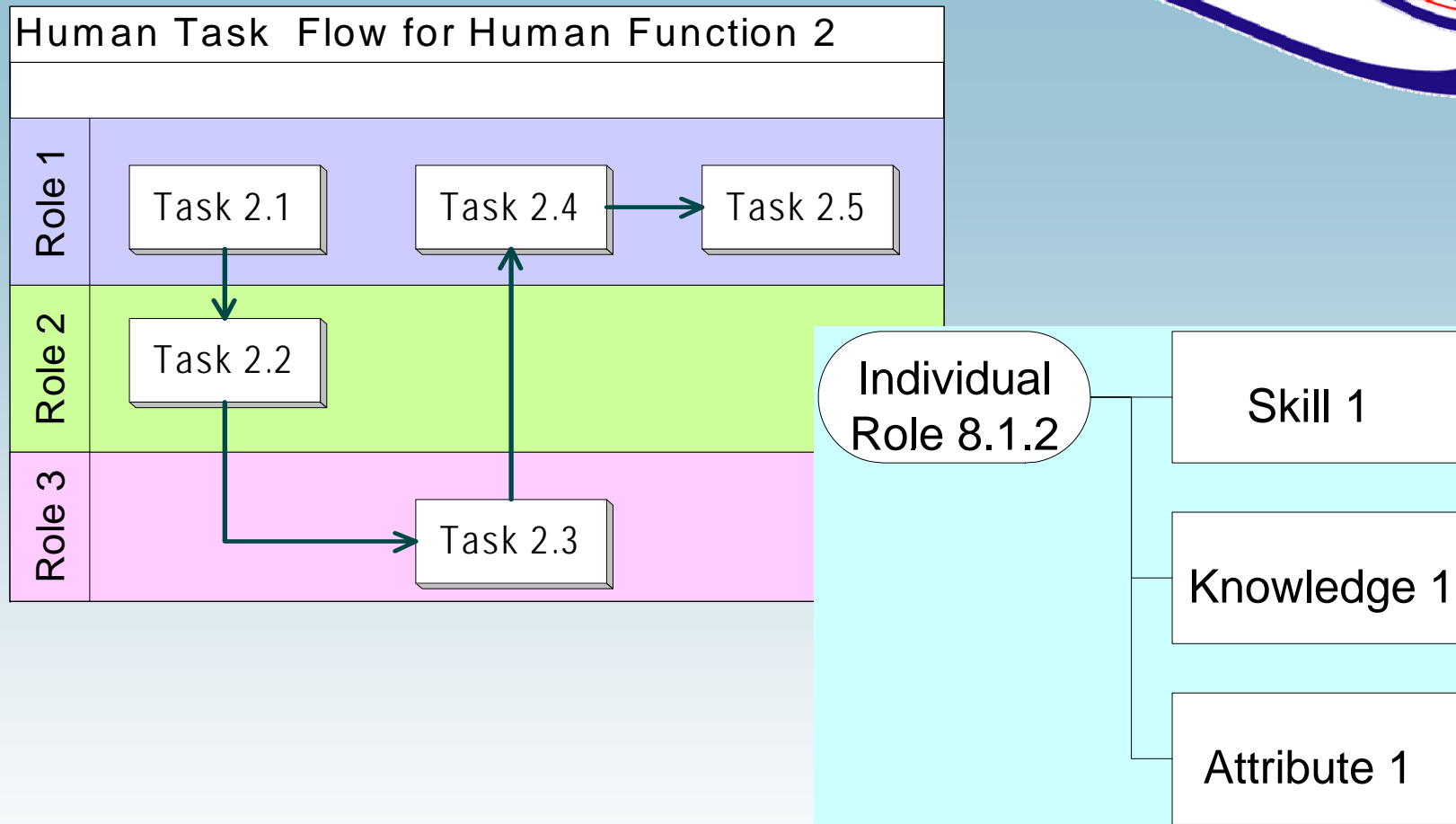


Note: 'system' is used here for hardware/technology
(in line with MODAF terminology)

HV-E: Human Functions and Tasks

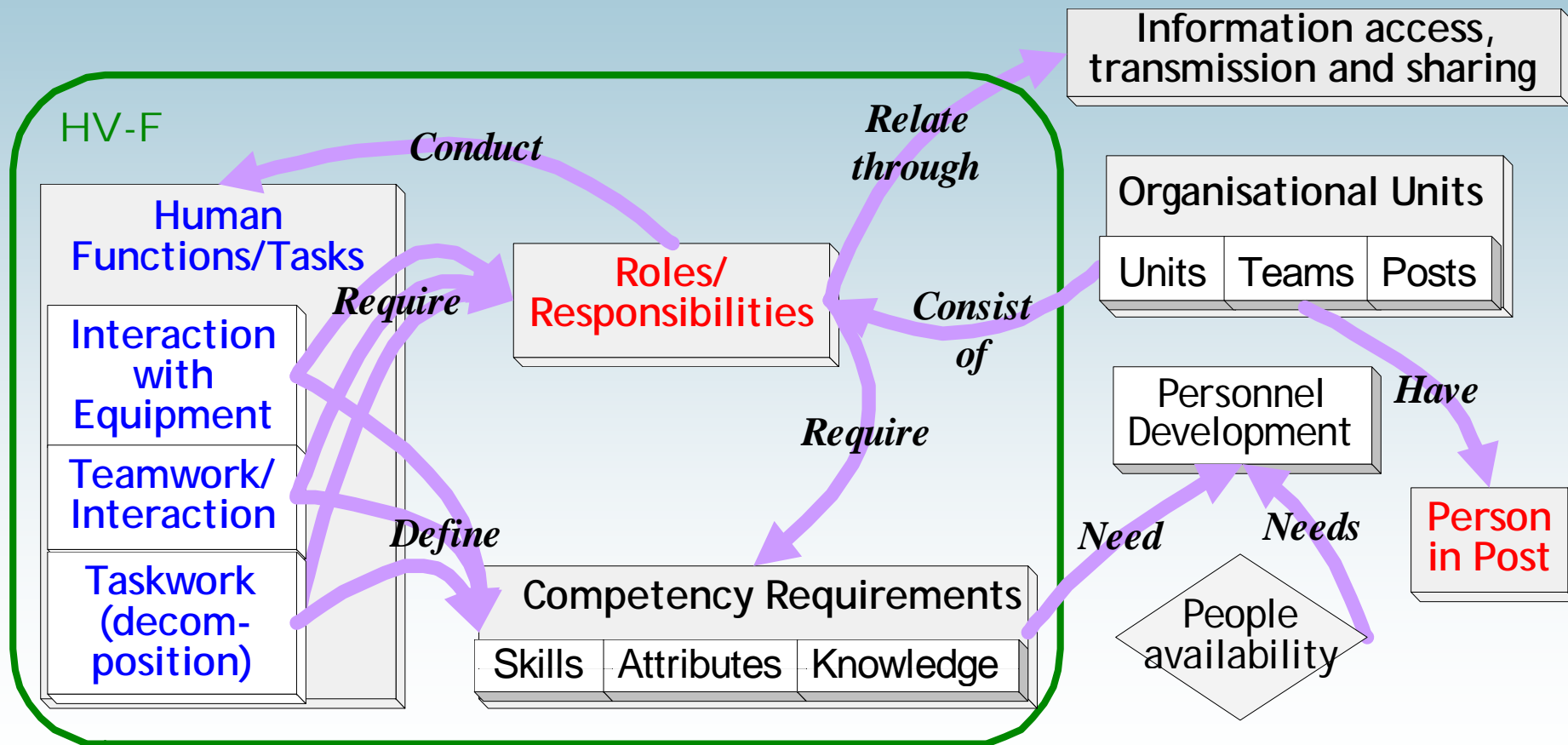


HV-F: Roles and Competencies (examples)



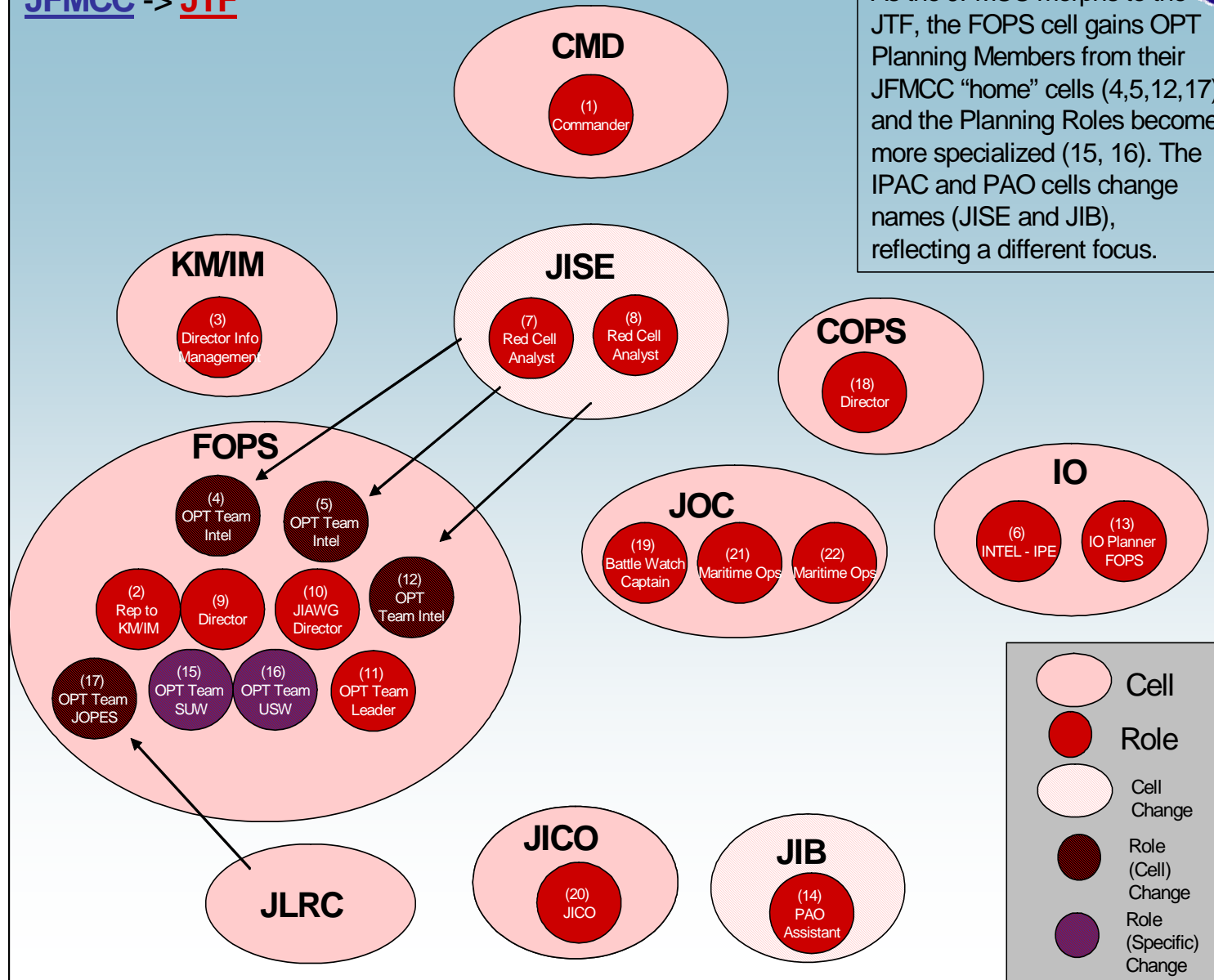
Note: The 'A' in KSA (Knowledge, Skills & Attributes) is sometimes also referred to as Aptitudes, or Abilities.

HV-F: Roles and Competencies

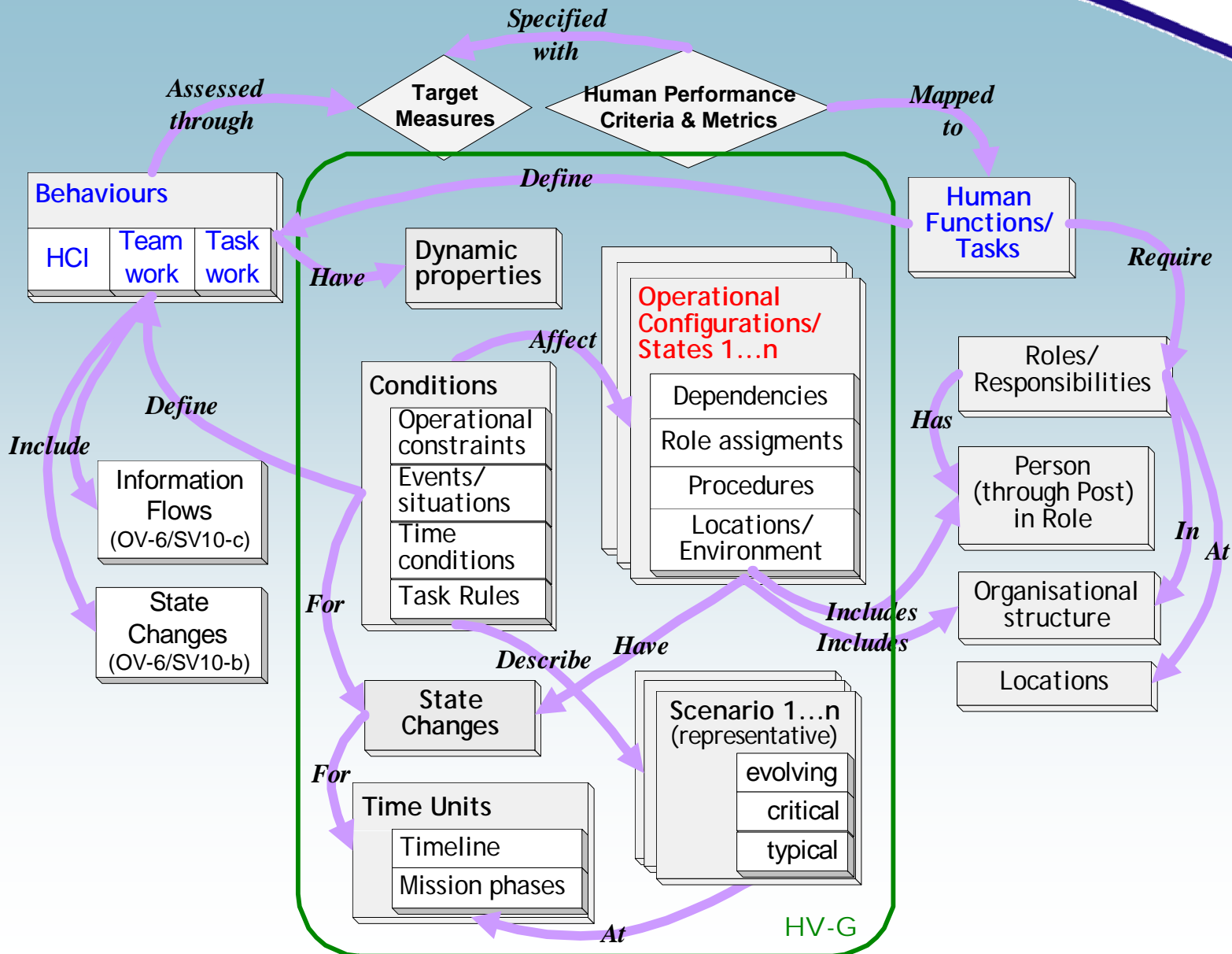


HV-G: Dynamic Drivers of Human Behaviour (example)

JFMCC -> JTF



As the JFMCC morphs to the JTF, the FOPS cell gains OPT Planning Members from their JFMCC "home" cells (4,5,12,17) and the Planning Roles become more specialized (15, 16). The IPAC and PAO cells change names (JISE and JIB), reflecting a different focus.



Summary



- The need to model an entire Enterprise as a socio-technical system is well recognised.
 - Enterprise Architectures are being conceived to specify requirements and solutions for all DLOD.
 - MODAF version 1.1 has significantly modified many of its underlying definitions.
 - The HVs further expand on this development.
- The complementary HVs for MODAF aim to bring together SE and HFI as two related disciplines.
 - Whilst SE and HFI depend on each other, each is grounded in a set of approaches and philosophies not immediately compatible.
 - By choosing a SE approach to express HFI design decision areas, HFI professionals are provided with means to communicate to Systems Engineers.
 - HV elements have the potential of changing traditional SE approaches that can be overly technology focused.