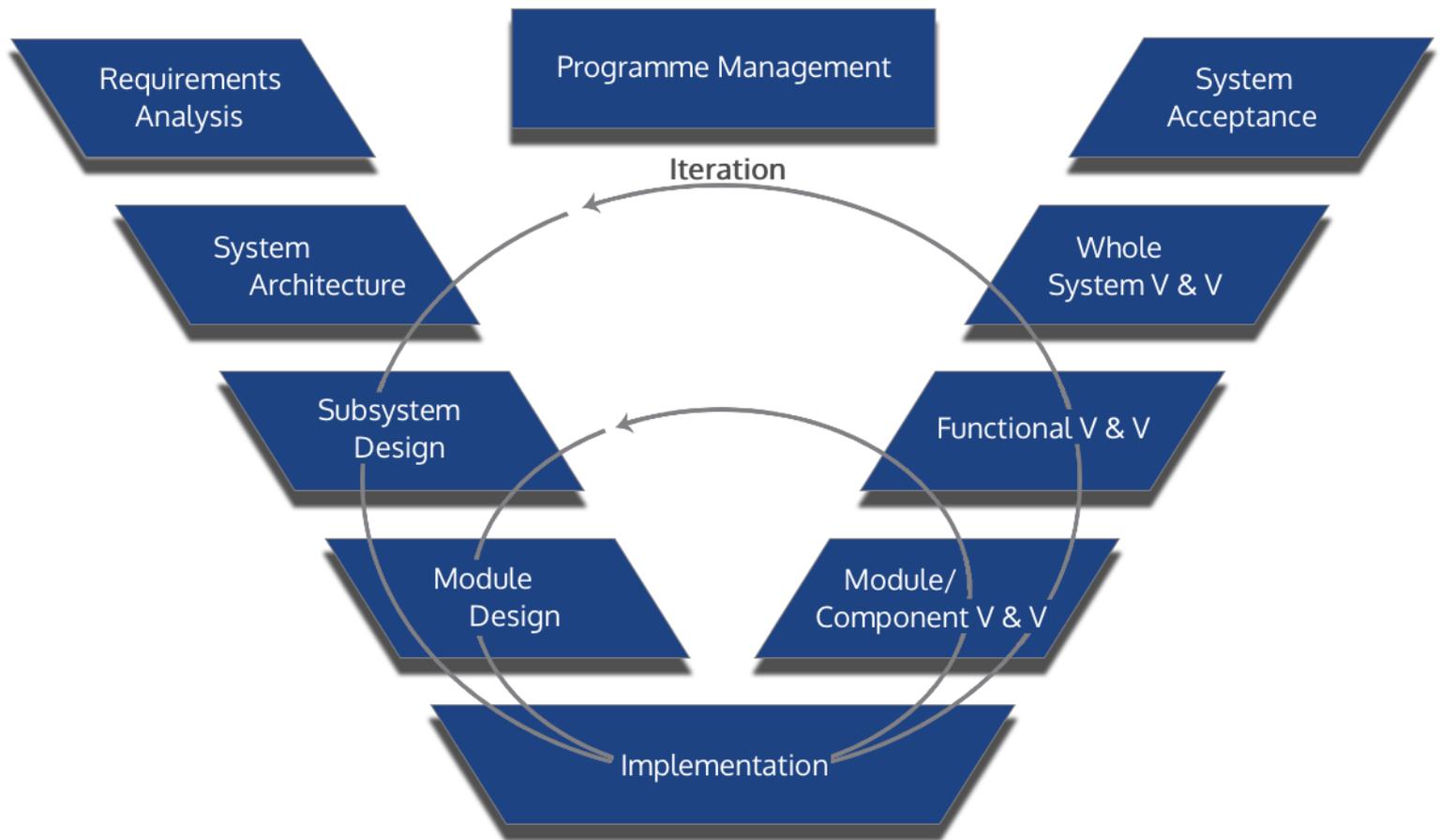


Synoptix Capabilities Diagram (Static Version)



Programme Management

Synoptix has extensive experience within Project & Programme Management. The Synoptix team will guide a project from the initial scope through to completion, while adhering to strict time and budget requirements.

The Project Management Plan (PMP) is a comprehensive tool for estimating the time, cost and resources required for the project. The PMP is constructed during the initial programme stages. Within this document all required tasks are listed and explained in detail, clearly noting any task time constraints and/or project milestones. The Synoptix PMP is a live document and as such it is updated in line with project progression, this allows for the potential re-allocation of time and resources as the project evolves.

Requirements Analysis

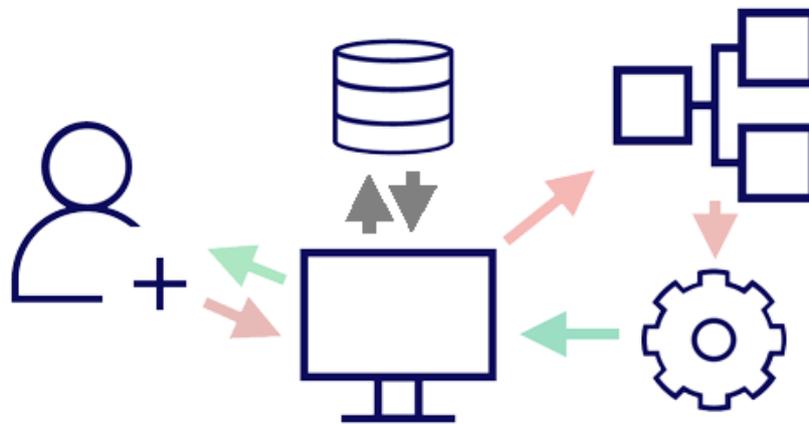
Requirements capture, analysis, and definition is a crucial stage in the 'V-Cycle'. The Synoptix team will endeavour to accurately and comprehensively define the project or system requirements from programme initiation.

With our expert capability in IMB Rational DOORS, Synoptix can delve deep into the system output, functionality and performance requirements. Realising and establishing solid obtainable goals early in the project, enables our customers to be certain that Synoptix will accurately, and comprehensively capture their project/system needs.



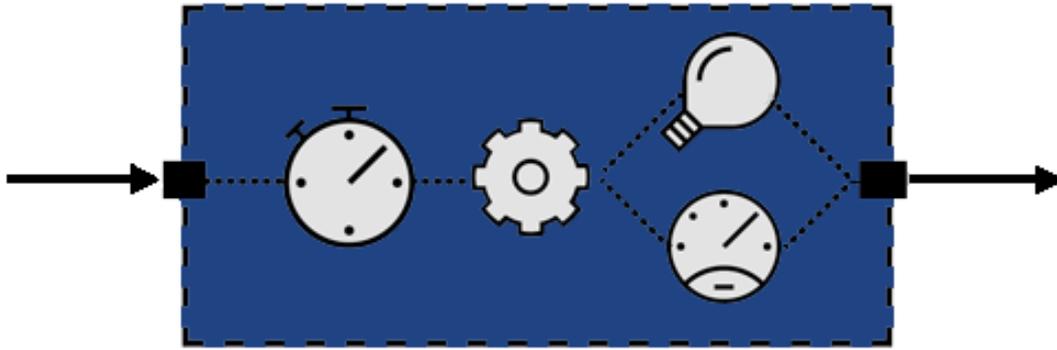
System Architecture

The conceptual phase of systems design. The Synoptix team has experienced engineers capable of providing systems architectural design to the highest standard for mechanical, software, electrical, electronic and process based systems. With expertise in software tools such as IMB Rational Rhapsody, Synoptix has a strong capability to accurately design and graphically represent system architecture, enabling the definition of system structure, behaviour and functionality.



Subsystem Design

The detailed design phase of the system. The components of the high level system defined in the System Architecture stage can often be broken down into a series of subsystems which will work together to achieve the relevant system requirements. The subsystem design stage will: define the behaviours and internal structure of each subsystem, describe the realisations between the subsystem interfaces and classes, and determine any dependencies upon other subsystems.



Module Design

This is the lowest level design phase of the system. All System and Subsystem components are broken down into modules which define the individual pieces of code or physical hardware which will enable the component to fulfil its requirement. By the end of the Module Design phase, all modules will have Object Orientation, Logic and Data Flows assigned. This will enable the entire system to be well defined ready for the build/implementation phase.

By modelling the system in low level detail, the Synoptix team can be sure that no element of the system (physical or virtual) is overlooked before construction begins. If the design phases are completed to a high degree of detail and accuracy there is a drastically reduced chance of problems arising later in the engineering process.

Implementation

The stage at which systems designs and developments are realised into perceptible products. This stage is critical in moving a project toward system acceptance. Synoptix provides support in this stage by defining the build process, which will often require the sourcing, organising and managing of Materials and Suppliers. By providing supervision to the build process, Synoptix ensures that the end product is compliant to the relevant industry standards and certifications.

The Synoptix team will assure that the implemented product or system is compatible with any existing hardware, software or infrastructures. Our safety engineers can oversee the build process and provide safety support to prevent/mitigate potential hazards and faults both during and after the build phase. We're also able to provide intellectual engineering support across all skills and disciplines through the capabilities of our Subject Matter Experts (SMEs).

Module/Component V & V

This low level validation and verification stage allows the required system to be tested at a detailed level. Each module or component is individually isolated from the rest of the system and analysed against alternate models, systems or legacy data to ascertain its functionality and performance against the low level requirements specified within the module design phase.

If a problem or non-conformance is founded at this early stage in the V&V process it can be rectified before the whole system is analysed; this will save time and resources. Synoptix is capable of providing high quality software, mechanical and electrical engineers to perform the following low level modular V&V activities: technical reviews, simulation or prototyping and requirements tracing.

Functional V & V

Validation at a functional level will determine whether or not the end product or system meets the requirements specified in the Subsystem and System Architecture design phases. The process of functional V&V may take a long time especially for electronic systems where the number of test cases required can be very large in magnitude.

The Synoptix team has experience in hardware and software-in-the-loop testing/simulation. In the case of hardware analysis this often requires the construction of a test rig which enables a component of a larger, more complicated system to be isolated and tested externally. All other related systems are modelled as a mathematical representation. By undertaking functional V&V, faults or bugs within the hardware or software of individual systems can be resolved before they are incorporated into the final integrated product or system.

Whole System V & V

This is the top level V&V activity in which all components and subsystems involved in the project are analysed against the original design and functionality requirements. At this stage information from the current and previous V&V activities is used to ensure the product:

- Is being realised or constructed correctly;
- Accurately conforms to initial customer and design requirements.

The final system should be able to perform, function, be operated, be maintained and be reliable up to or beyond the requirements set for it, in order to pass into the product acceptance phase. The Synoptix team will use a range of tools and expertise to fully validate and verify the product or system such as:

- Mathematical Simulation (Matlab incl. Simulink)
- Reliability Modelling (FaultTree+)

System Acceptance

The final stage in the 'V-Cycle' engineering loop is to transition a verified and validated product into service as a customer approved end product. Synoptix have extensive experience in guiding a product or system successfully through this phase. Our team have the capability to ensure that all customer and regulatory certifications are met and evidenced appropriately. We can also prepare the relevant technical and user documentation which will accompany the product or system into service.

Final testing is often required at this stage to prove that the product or system meets the requirements and specifications set by the customer. This final validation may be physical, performance based, or in the case of software and systems engineering black-box testing may be necessary.