Quality Risk Management

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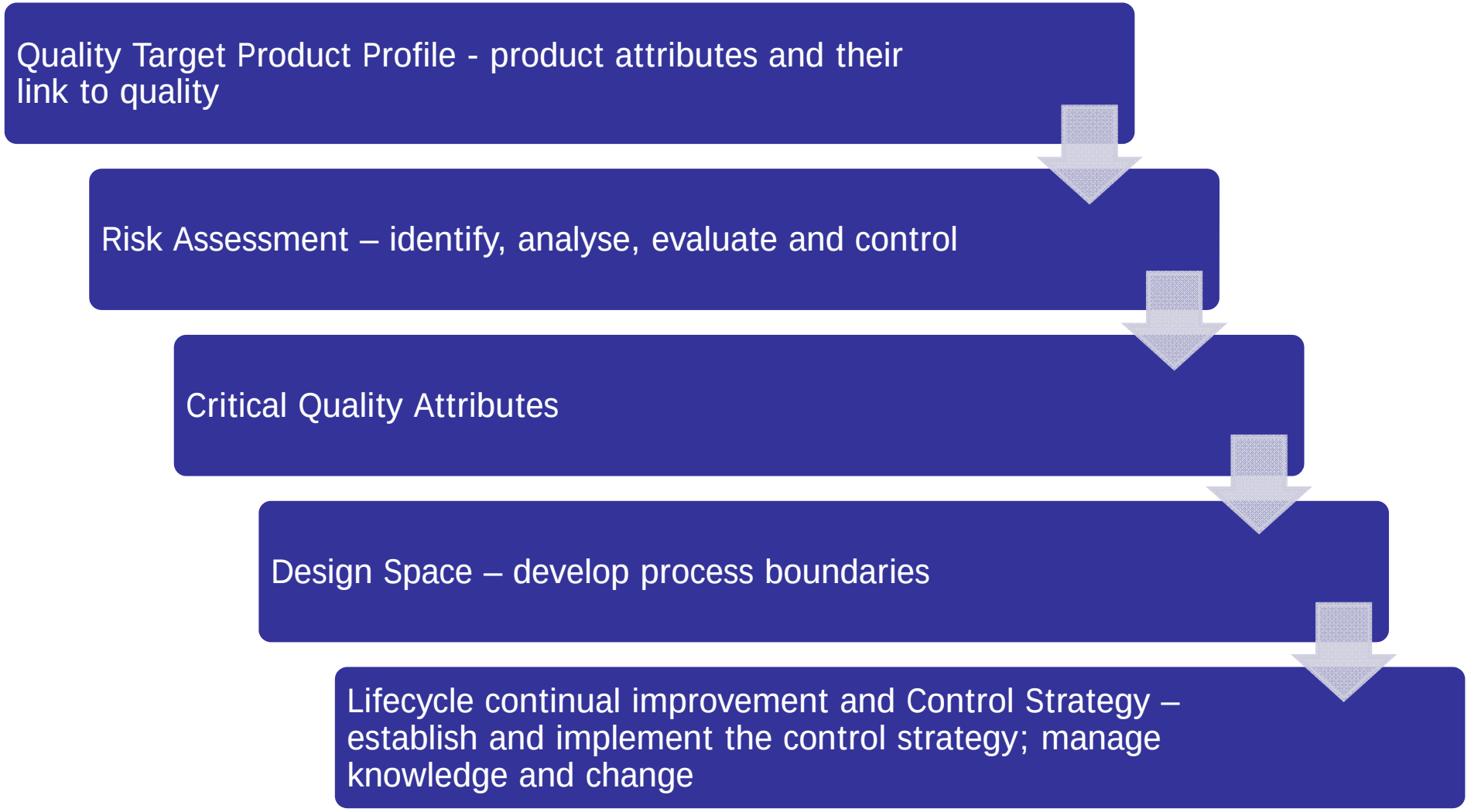
Progression of Development



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CQA and CPP

Critical Quality Attribute

- A CQA is a physical, chemical, biological, or microbiological property or characteristic that should be within an appropriate limit, range, or distribution to ensure the desired product quality
- Drug substance, excipients, intermediates

Critical Process Parameter

- A process parameter whose variability has an impact on a critical quality attribute and therefore should be monitored or controlled to ensure the process produces the desired quality

Quality Attributes

	Appearance	**Performance**	Comfort	**Stopping**	Heating/ Cooling	Transmission
Severity (survival)	L	H	L	H	L	L
Probability (risk likelihood)	L	M	M	M	L	M
Detectability	H	M	H	M	H	H
Total	L	H	L	H	L	L

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Critical Quality Attributes

Annex 15 says…

Risk analysis
Method to assess and characterise the critical parameters in the functionality of an equipment or process.

It is a requirement of GMP that manufacturers identify what validation work is needed to prove control of the critical aspects of their particular operations.

A risk assessment approach should be used to determine the scope and extent of validation.

	Stopping
Colour	
Brake assembly	
Acceleration	
Suspension	
Seat covering	
Tyres	
Fuel type	

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Forum Scope

NVF I

- CQAs and CPPs – Risk Management
- Control Strategies
- Novelty, complexity and supplier capability
- Support and verify operating parameters

NVF II

- CQAs and CPPs – Risk Management
- Novelty, complexity and supplier capability
- Product Quality Review
- Assess and characterise
- Significant change

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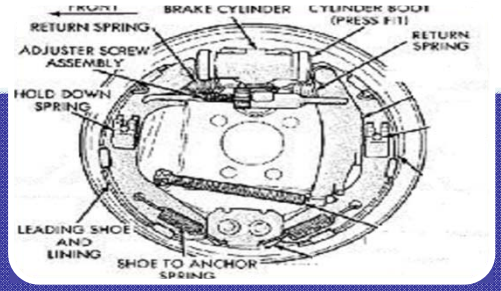
The Dream



- Complexity and Design Qualification
- 186 red motor
- no computerised systems
- pneumatics and closed, pressurised systems,
- Australian standards (energy absorbing steering wheel)

Novelty – new body model, same motor from the previous model; 90,000 built at time of purchase

Known issues – choke freeze, no synchromesh on 1st gear

- Supplier and supplier performed based IQ, OQ
- Lang Lang proving ground and set of operating conditions

- Supplier; building cars in Australia since 1940
- Publications and reviews

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- Manufacturer recommendations for replacement
- Unauthorised modifications
- Driving conditions & styles

- Regular inspections

- Brake assembly/materials of construction
- Drums (watch out for pools of water)
- Closed system & slave cylinder
- Return springs

- **Servicing**: Visual inspection, replacement programme, parts (genuine/non)

- Tyre width, depth and longevity
- Air pressure and visual inspection

- The tyre itself is a key process performance measure

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Design Space

Critical Quality Attributes		Design Space (performance boundaries)	Changes within the design space	Changes outside of the design space
Number of stops/hour	1000/hour	The life span of the brake pads	Yes – proceed and change the pads	Can't proceed
The rate of stopping	10/m/s/s	The life span of the disks		
		Heat dissipation rate from the brakes		
		Heat transfer to the wheel		
		Environmental factors; water, temperature		

Change

Significant changes to the facilities, the equipment and the processes, which may affect the quality of the product, should be validated.

Beast vs. Industry

The Beast	The industry – Product Quality Review
Original spare parts (brake assembly/tyres/suspension)	Starting materials, packaging materials especially those from new sources.
Regular servicing records, visual inspections and equipment functionality.	Critical in-process controls and finished product results.
Major break downs and root causes identified and eliminated.	All batches that failed to meet established specification(s) and their investigation.
Collisions and repairs.	Significant deviations or non-conformances, their related investigations, and the effectiveness of resultant CAPA.
Modifications and changes (including equipment and suppliers)	Process or analytical method change.
	Marketing Authorisation variations.
Reliability of the car, fuel types and additives.	Stability monitoring programme and any adverse trends.
Recalls from Holden ('Choke freeze' and no synchromesh)	Quality-related returns, complaints and recalls and the investigations performed.
New body model featuring an existing motor.	Adequacy of any other previous product process or equipment corrective actions.
Previous and subsequent models.	For new marketing authorisations and variations to marketing authorisations, review post marketing commitments.
In process controls.	The qualification status of relevant equipment and utilities.
Mechanic and servicing people (Operational improvements)	Review of contractual arrangements.

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Lifecycle and learning