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A Structured Approach to Address System Performance

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What is this about?

A structured approach to address system performance both in the short term and in the long term.

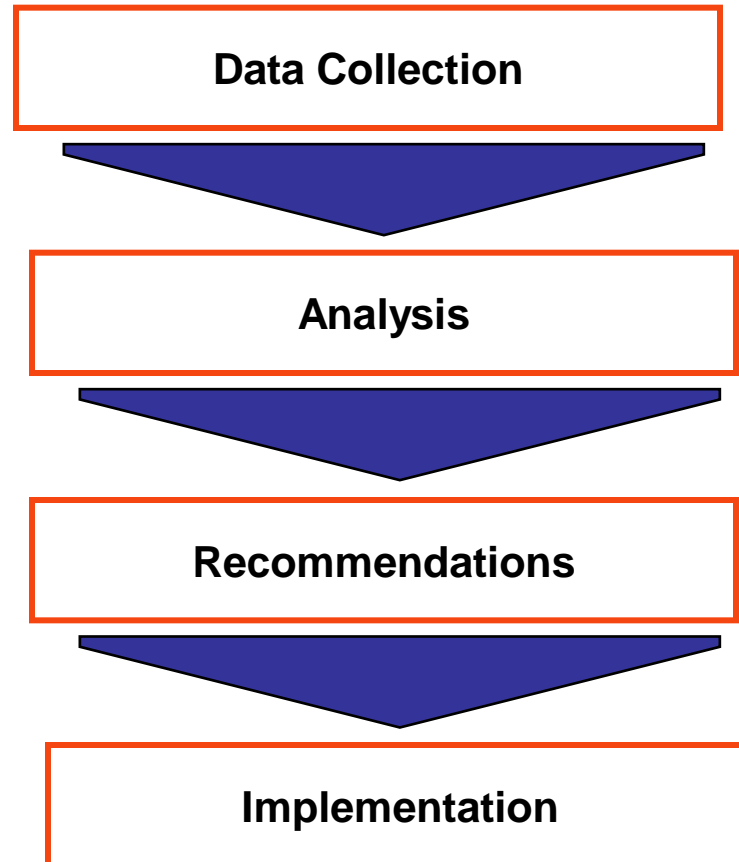
The approach does not cover factors such as **people, processes** and **hardware**.

The quality characteristics, Performance, Reliability and Conformance¹ are referred as “Performance” throughout the presentation.

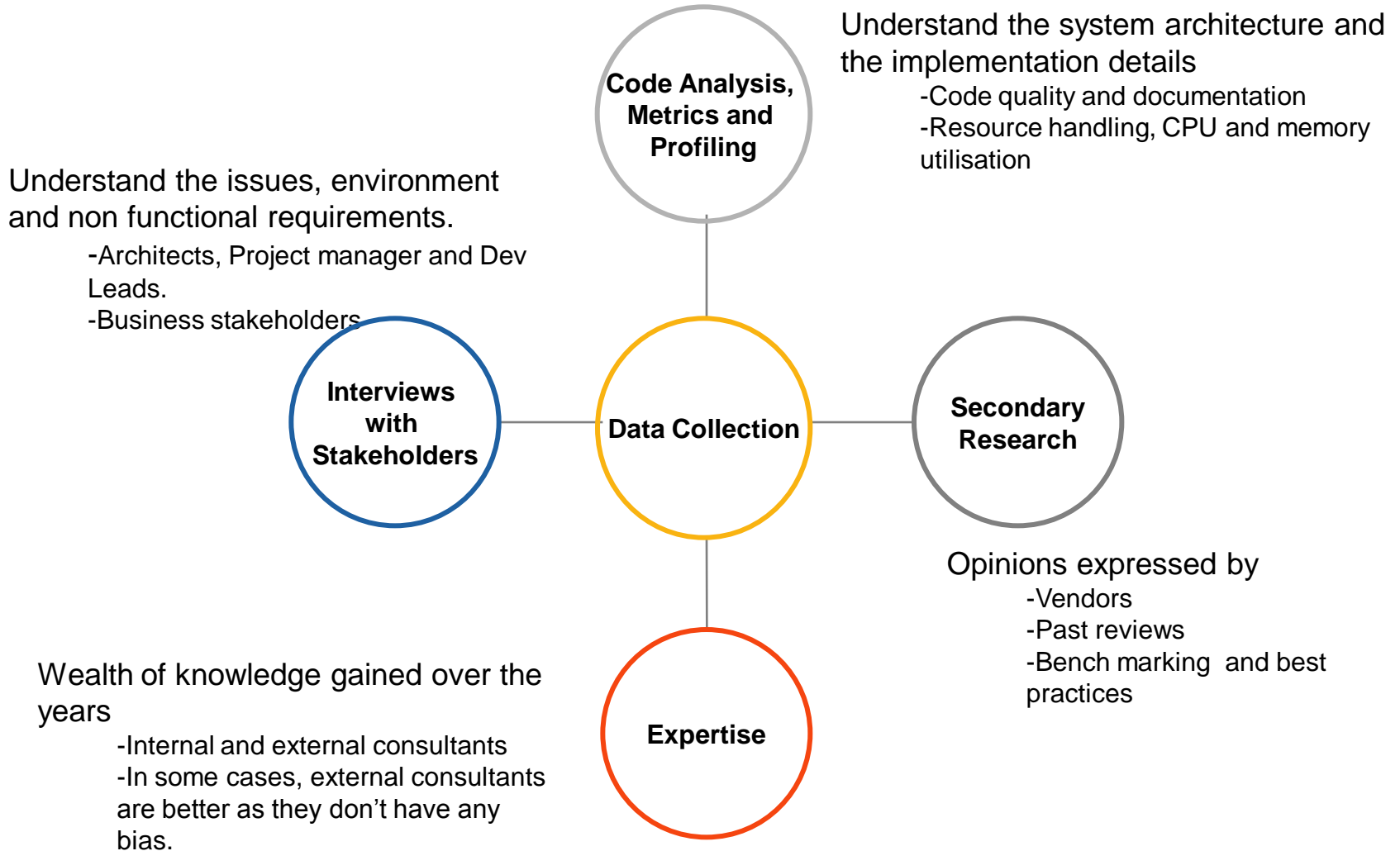
This is not “the only approach”, however, the approach has been adopted in the past to address the performance of large scale multi-tier applications using J2EE, Grid Computing and Handheld devices.

(¹Leon B. Crosby, Raffaele DeVito, and J. Michael Pearson. 2003)

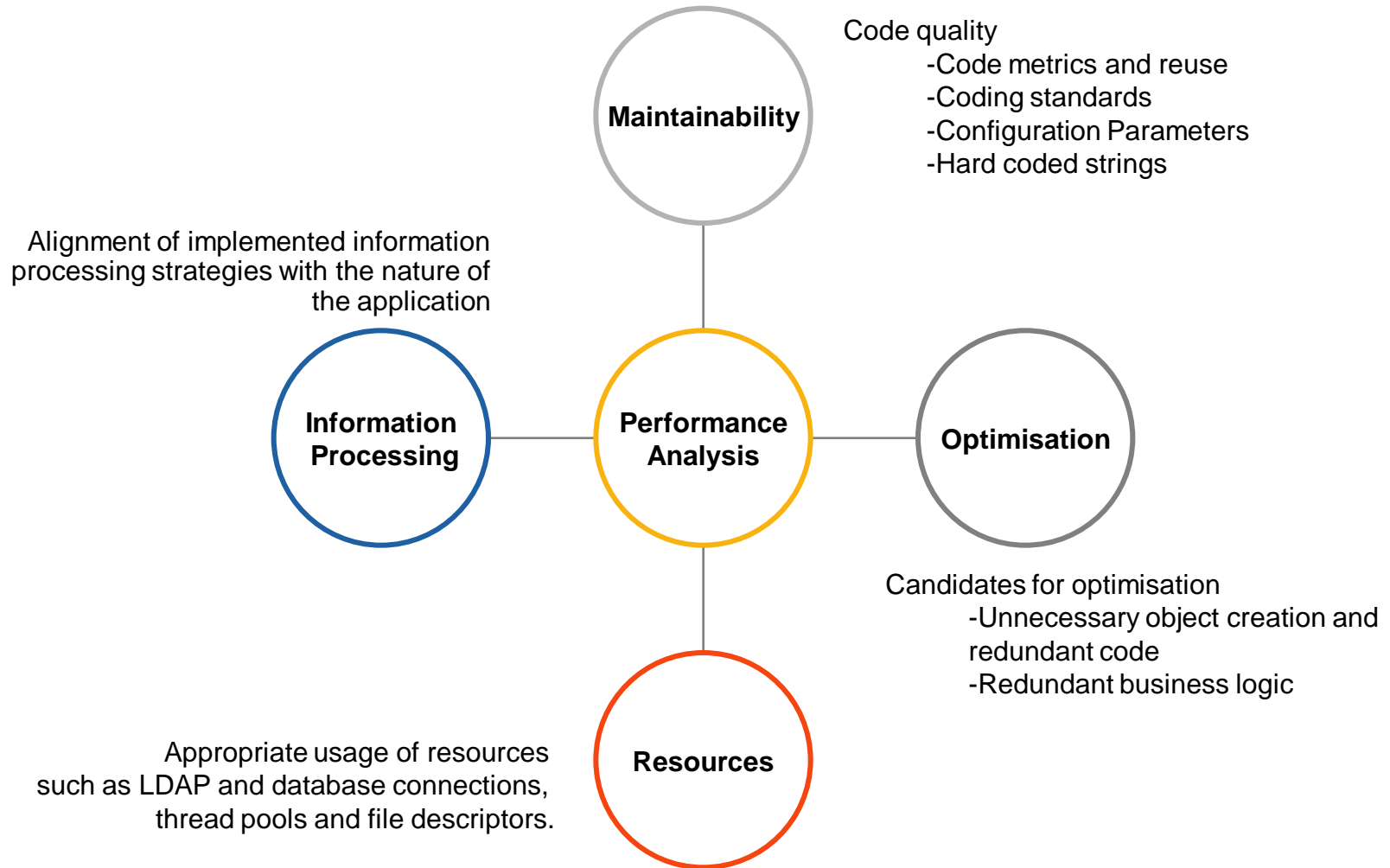
The Approach



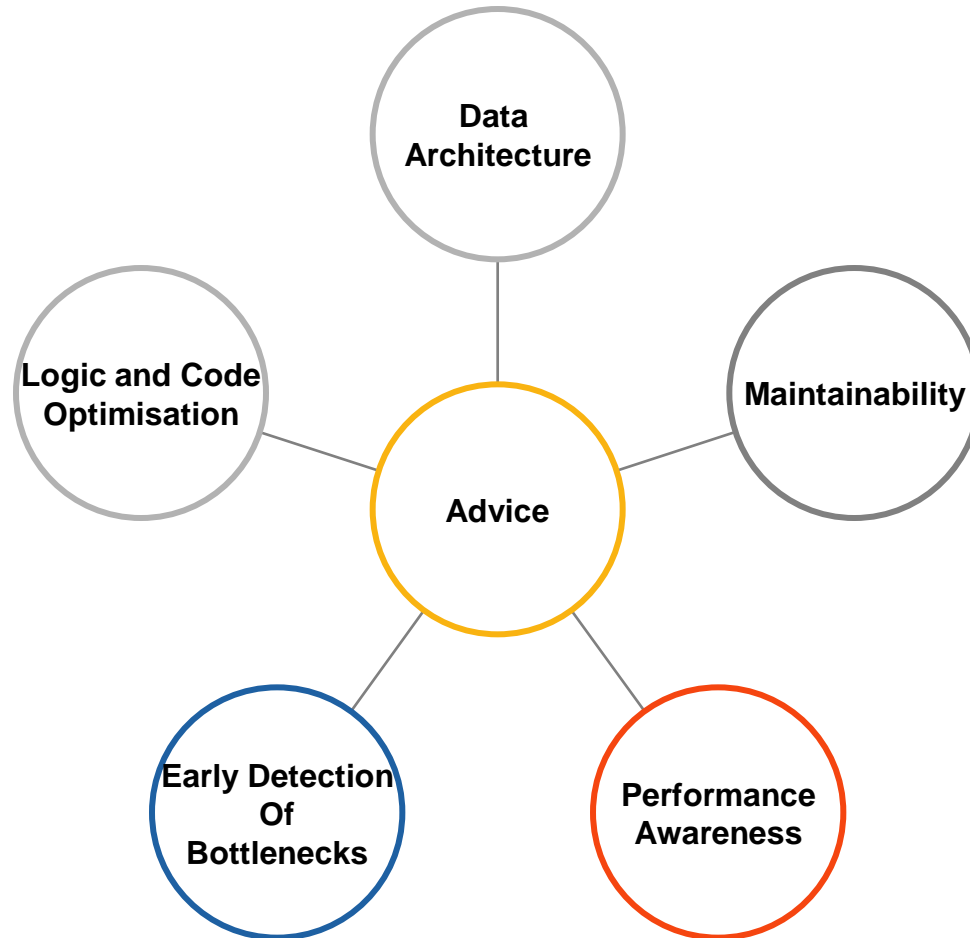
Data Collection



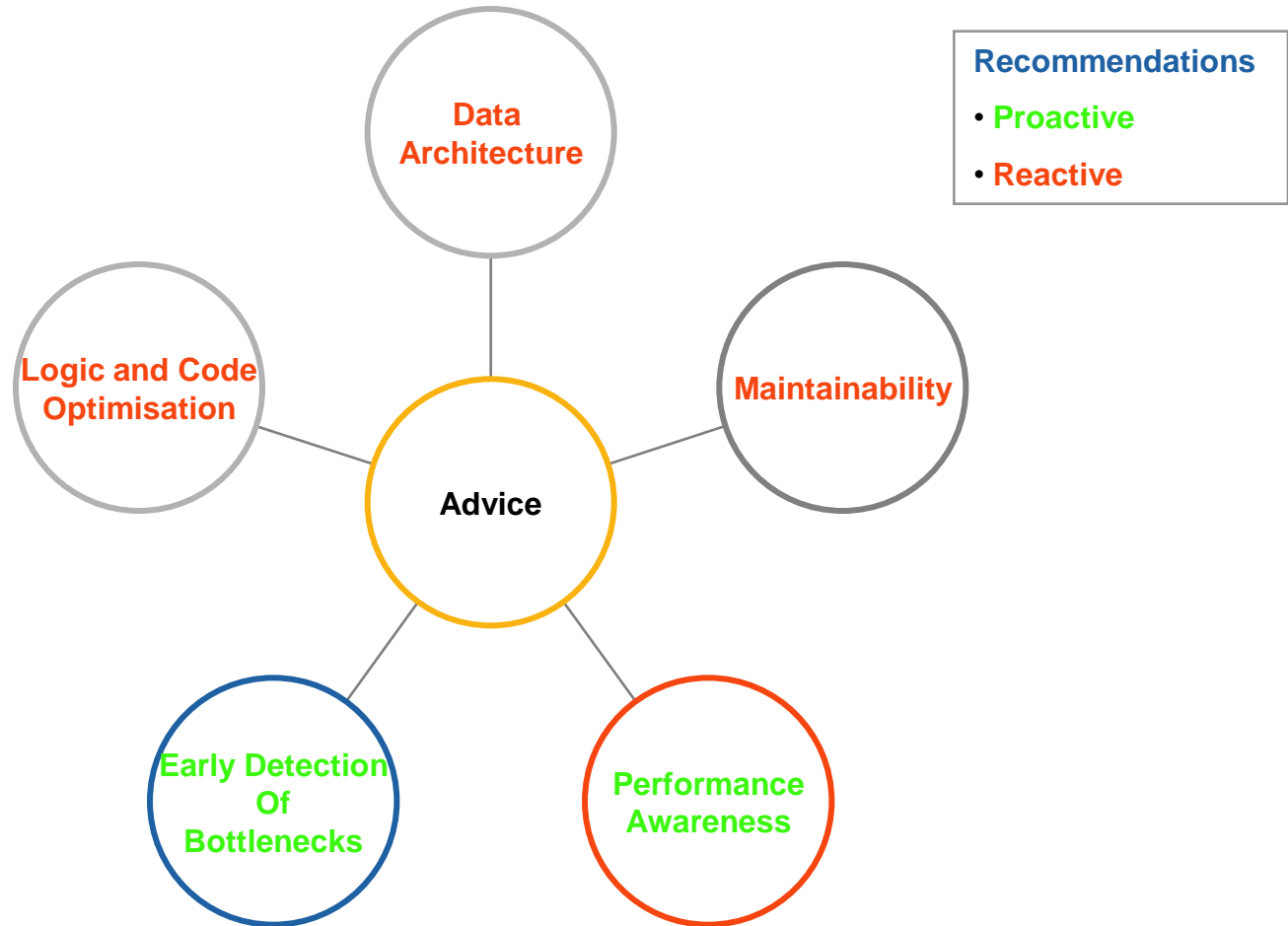
Performance Analysis



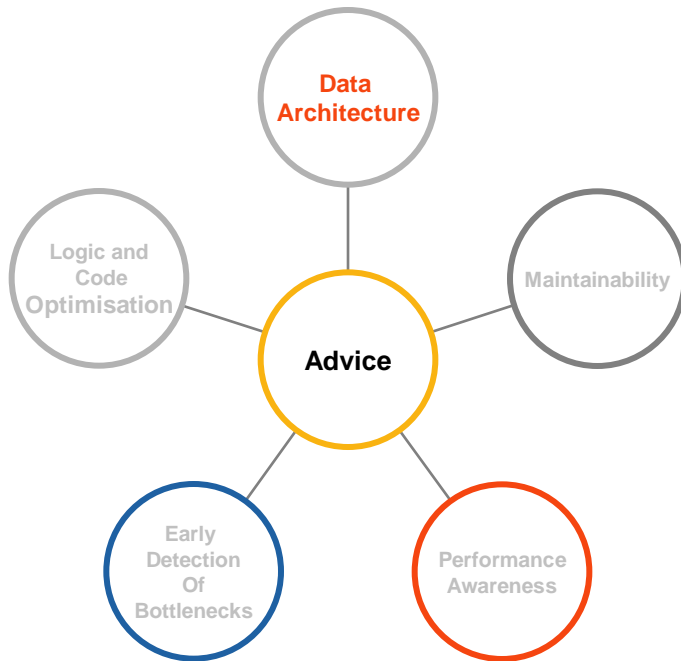
Recommendations



Recommendations



Recommendations (1)



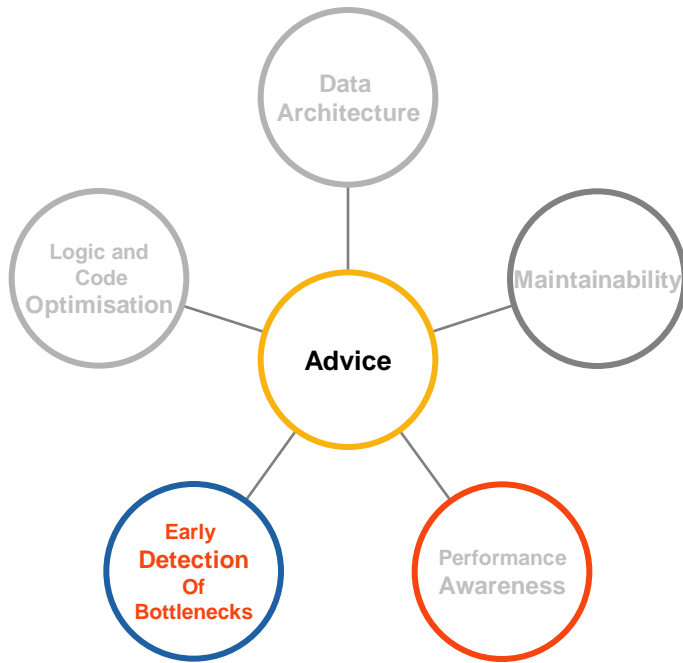
- Suggest data preparation and storage strategies
- Data massaging in appropriate layers
- Avoid data massaging in presentation layer
- Prepare the data and store outside the application for quicker access
- Bypass ORM layer with direct SQL queries.
- Consider different data caching strategies.

Recommendations (2)



- Removal of redundant code and business logic.
- Opportunities to optimise resource handling.
- Identifying memory leaks.
- Consistent interface definitions across layers.
- Efficient paging mechanism in presentation layer.
- Cull out any unnecessary data early in the results processing chain

Recommendations (3)



- Introduce tools, check lists and templates at various stages of SDLC to detect bottlenecks early.
- Automated unit test cases.
- Regular application profiling

Recommendations (4)



- Often, teams don't understand the nature of the application they are developing
- Conduct Induction & Training
- Establish development guidelines
- Perform impact analysis before adding new functionality

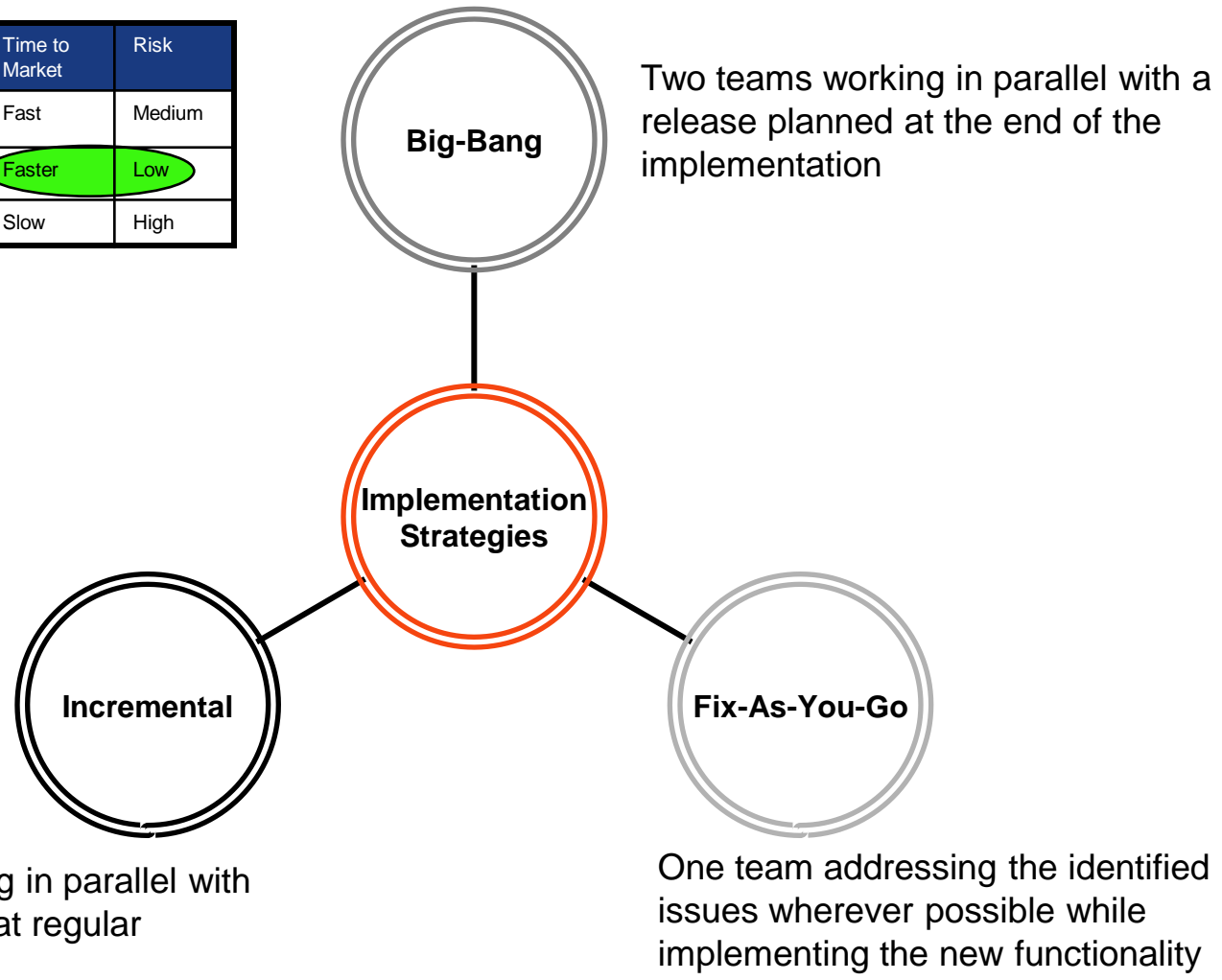
Recommendations (5)



- Code re-organisation and refactoring opportunities
- Centralise configuration parameters
- Enforce coding standards

Implementation strategies

Approach	Expertise	Time to Market	Risk
Big-bang	Medium	Fast	Medium
incremental	High	Faster	Low
Fix-As-You-Go	Low	Slow	High



Questions?