

Distributed Software Development Framework

**A practical guide to
successful evaluation, execution and optimisation of a
distributed software development organisations**

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1 Programme frameworks

1.1 Programme objectives

Business change programmes should develop an integrated and organisation-wide approach that helps achieve the desired strategic goals. Before embarking on such a programme it is important for the organisation to have a clear set of business objectives described in a business case. With these clearly defined, the organisation is able to predict, agree and measure the success of a distributed software development programme (DSDP), such as offshoring, partial outsourcing or joint development.

1.2 The need for a framework

Distributed software development programmes are complex. There are a substantial number of inputs, interdependencies and a large learning requirement. To optimise performance, all DSDPs should focus specifically on five core aspects of the organisation:

- Exploiting the right quality systems, processes and information technology
- Maintaining effective organisational communication
- Ensuring the organisation maintains its innovation capability
- Effectively managing programme performance and changes
- Measuring operational performance capability before, during and after.

Whilst there is an increasing amount of descriptive information (e.g. internet, books and training courses) providing commentary on the individual activities of a software development (e.g. roles and responsibilities, quality processes), often focus solely upon the project team, omitting other business changes and, most importantly, the interoperability requirement that drives significant performance improvements within a distributed development environment. The presentation of this information also requires a lot of interpretation from which the most significant priorities or dependencies are not always apparent.

Many organisations fail to realise they can flexibly make the transition from a single-location or I.T. centre to multiple locations. Transition is achieved by leveraging a suitable programme framework that provides the necessary guidance and measures to steer them through the key stages. Whilst most published information about DSDPs place emphasis on the mechanics of software development methods and techniques in a new organisation environment, a successful programme framework provides the necessary enterprise-wide approach by taking into account such factors as communication, operational, and knowledge management across the programme team, the newly emerging project teams, the rest of the organisation and their customers.

To enable programme owners to accurately evaluate the progress of their DSDP, identify performance challenges or help optimise an existing distributed organisation, a framework provides a simple tool to capture, analyse and present the status of the programme and the performance of the projects undertaken. Programme progress accurately indicate where an organisation is within the business change programme, providing an insight that helps identify risks and best practices.

1.3 Distributed software development stages

The DSDP framework ensures the implementation of the appropriate core principles and techniques, avoiding the adoption of arbitrary tools across the newly dispersed project teams without understanding the interdependencies and their importance. Successful distributed software development consist of three distinct stages: evaluation, execution and optimisation.

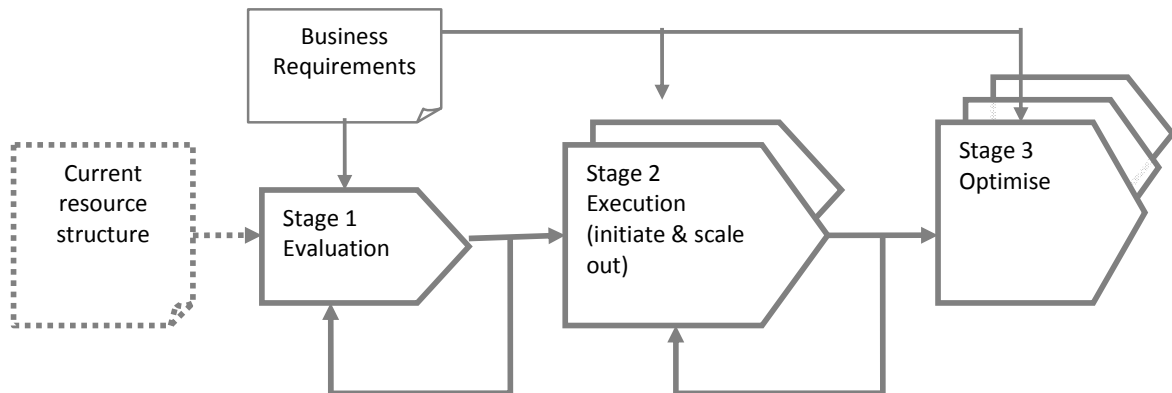


Figure 1.3: Distributed Software Development Programme Framework Stages

It is possible to monitor the progress of the programme by evaluating how successfully the organisation has adopted core distributed software development principles and techniques, and diagnosing underlying operational and commercial weaknesses. The findings from a series of programme audits and checklists provide an accurate quantitative assessment of the programme’s achievements. Analytical tools help diagnose issues and identify corrective measures, guiding programme owners through the right workflow. Throughout the programme, performance should benchmarked against existing organisational structure, the distributed software development strategy and industry subject matter expertise.

1.3.1 Stage 1: Evaluation

Whether the organisation has developed a clear set of business objectives, the results from a series of benchmarking audits provide an accurate insight into the strengths and weaknesses of the proposed programme against 10 key characteristics. These characteristics have been chosen based on their known influence on the success of distributed software development as defined by subject matter experts. As a consequence, the framework enables the programme to incrementally evolve as it progresses through the following stages.

1.3.2 Stage 2: Execution

Accelerating an organisation's DSDP is achieved in two ways. The first is to guide the organisation through a thorough performance analysis of the most appropriate programme activities and diagnosing underlying root causes. The second is to ensure that the organisation efficiently and appropriately identifies and adopts the DSDP to accommodate its unique characteristics (i.e. scale out). Since programme success is significantly influenced by promoting the best practices appropriate to a specific organisation, the cost-effective access to subject matter expertise, collaborative tools and unique

analytical capabilities help guide programme owners and newly formed project teams through the changes applicable to their circumstances.

1.3.3 Stage 3: Optimisation

Stage three helps the organisation optimise its operational and commercial performance within the new organisational structure. Guidance on how best to address persistent programme weaknesses and exploit experience from past projects allow the organisation to retain an optimum level of capability as it continues to change in response to internal and external factors.

1.4 Review and feedback loop

Successful programmes incorporate a continuous improvement process. Continuous review and feedback loops enable the exploitation of lessons learnt from previous projects to accelerate the adoption of the DSDP by the entire organisation and reduce operational, commercial and change programme risk.

1.5 Programme schedule

The DSDP consists of a series of practical activities that assess programme performance, whilst guidelines deliver the right knowledge, at the right time in the programme schedule helping the entire organisation migrate from a single software development location to multiple.

Organisations that choose to exploit Monetical – the leading online consulting software service retain complete ownership of the programme and reduce their reliability on external support. A predefined programme schedule, in the form of checklists and audits that outline a critical path and offer a series of programme assessments, guides the programme owner through the necessary tasks associated to successful execution, analysis, diagnosis and correction of both planned and unplanned programme activities and actual project performance challenges attributed to the distributed organisation.

Both planned and unplanned programme performance assessments all follow a well defined workflow that ensures performance evaluation remains focused on completing the programme as efficiently, effectively and in accordance with industry best practices as possible.

2 Distributed software development capability

The ability to accurately and efficiently determine the ongoing performance of the programme at anytime reduces delays and risks and is therefore critical to success. A successful framework provides real-time reports on 10 key enterprise functions and consists of two capability values:

1. Foundation - Core DSD principles and techniques
2. Tailored - Unique organisational characteristics

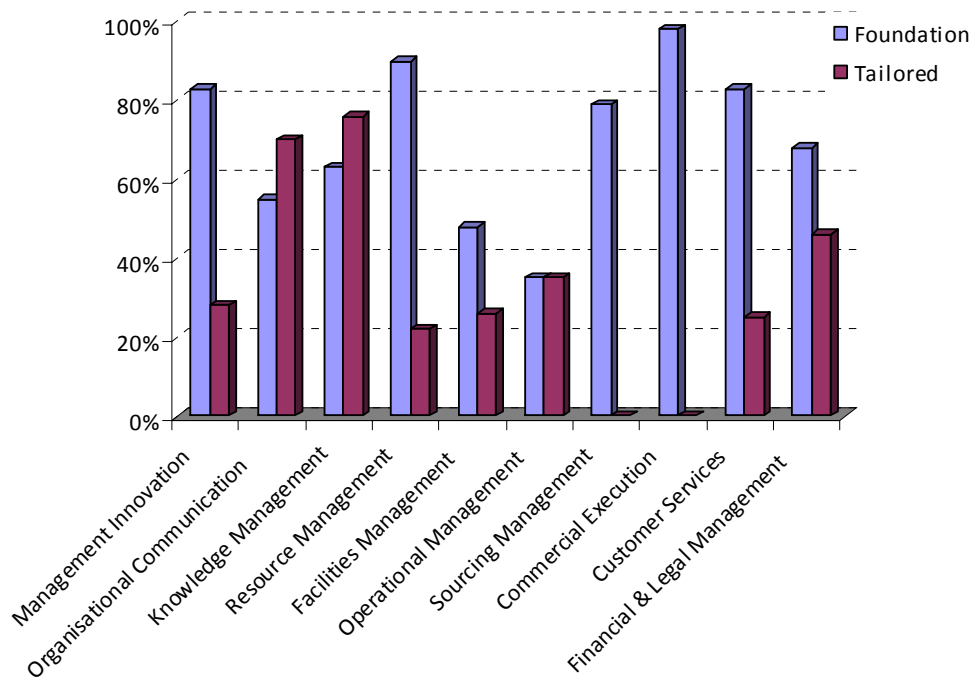


Figure 2.0: Enterprise Capability (Foundation & Tailored)

2.1 Foundation - Core DSD principles and techniques

Access to a wealth of subject matter expertise describing distributed software development principles, techniques and methods significantly improves the organisation's performance. The ability to benchmark current capabilities against these principles and techniques help organisations to effectively plan, execute and optimise its own programme.

2.2 Tailored and unique organisational characteristics

Successful frameworks provide guidance to allow the merge of the organisation's core DSD requirements and its own characteristics. The ability to tailor the scope of the programme activities and their focus, e.g. audits and surveys, unplanned impact reports and end user feedback from published guidelines and checklists, ensures that a comprehensive performance evaluation and optimisation are achieved.

2.3 Checkpoints (go / no go)

Good DSDP frameworks incrementally measure and guide changes, ensuring that organisations do not look too far ahead. The adoption of a DSDP across the organisation should occur in stages, with integrated programme performance reports providing a clear indication as to whether the organisation should tackle the next category or invest further resources to enhance the current programme activities. Overall, the framework is designed to provide time to analyse, tune and adjust the performance based on the experience gained.

3 Enterprise and operational categories

Distributed software development programmes must first focus on progressing the strategic goals of the enterprise, e.g. reduce operational costs and increase revenue. In addition to the direct operational costs, overall operational costs should also be measured and controlled to ensure any costs associated to additional overheads or weaker operational performance are considered. Constantly measuring the capability of the enterprise against 10 enterprise characteristics provides a holistic view of the organisation's current and potential performance capability, allowing for its strengths and weaknesses to be identified and further analysed and finally converted into best practices.

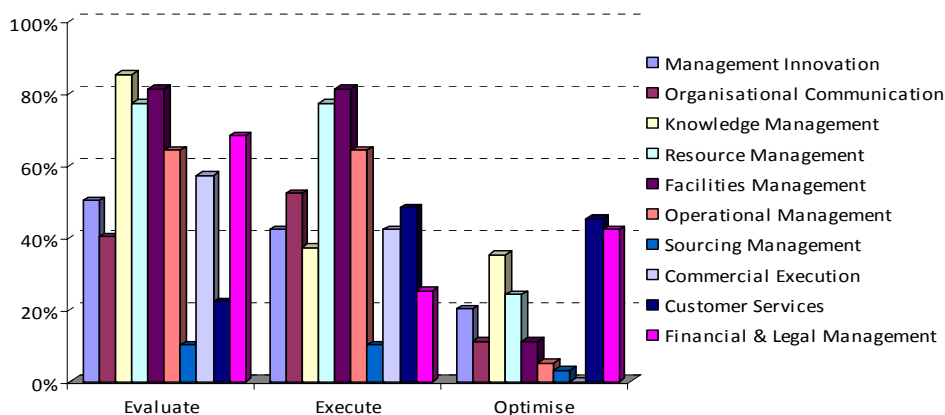


Figure 3.0: Enterprise Characteristics

3.1 Management innovation

The DSD framework aids the organisation to measure whether the changes brought about by the programme are likely or have influenced its innovation capability. The framework also allows the organisation to clearly understand how the DSD will aid in the creation of better products, services and solutions.

3.2 Organisational communication

The framework helps the organisation understand the influence on performance of the current communication techniques adopted within the project team, between the project team and the senior management and between the project team and customers. The findings also help establish the suitability of the current I.T. provision, appropriateness of formal communication techniques and the condition for supporting unique project characteristics.

3.3 Knowledge management

Knowledge is considered by many to be the single biggest influence on project performance. Knowledge evolves from a better understanding of how past experiences influence current situations and how to exploit these to optimise performance. In spite of an increased organisational structure, the framework provides the necessary subject matter expertise, collaboration tools and analytical capabilities to

measure and optimise the organisation's ability to efficiently convert operational and commercial experience into enterprise knowledge.

3.4 Resource management

The resource management element of the framework covers several key resource management characteristics, such as leadership and management, resource allocation and external resource management. Guiding organisations through the appropriate internal resource restructuring requirements raises awareness of the roles and responsibilities required by the newly formed project teams and its stakeholders.

3.5 Facilities management

Open and active collaboration is central to any successful organisation. In the majority of cases collaboration is aided with investments in infrastructure, systems, equipment and accommodation (offices and meeting rooms). Focus of the facilities management component aims to establish the appropriateness of existing facilities and identify where investment is required to aid performance and address the increased organisational complexity, e.g. web conferencing tools.

3.6 Operational management

DSDP will bring about changes to risk management, quality management and environment factors. The framework helps develop a better understanding of the key characteristics that influence the performance of different types of software and IT projects and improves the emerging resource structure.

3.7 Sourcing management

An increasing number of software and I.T. solutions include a 3rd party intellectual property. The need to ensure that the emerging resource structure does not introduce issues that may hinder existing collaboration between the parties has therefore become of relevance. Additional factors also allow it to improve how the new organisation plans, executes and optimises its sourcing strategy.

3.8 Commercial execution

Organisations must take into consideration the influence of the proposed programme on internal and external commercial factors (e.g. delivery channels, size of customer base and licensing models). The new resource structure will guarantee that the organisation constantly changes or streamlines its products and services to ensure continued commercial success.

3.9 Customer services

The customer services section ensures that there is sufficient infrastructure and process in place to provide the necessary interaction between the project and support teams to resolve issues arising during the release process and post-release.

3.10 Financial & legal management

The framework supports two key requirements. The first helps the organisation benchmark the quality of the initial financial and legal matters, providing a clear indication of the organisation's readiness to make the planned resource changes. The second helps identify and introduce new financial or legal management requirements across the new resource structure and the newly formed project team.