CHAPTER

8

STREAMLINING SOFTWARE DEVELOPMENT THROUGH TICKETING TOOLS

Noor Aklima Harun, Farizie Abdul Razak,
Noor Fazilah Zakaria, and Sharin Hazlin Huspi

8.1 INTRODUCTION

High-performing software development relies not only on tools but, more importantly, on people. Its success depends on how analysts, programmers, and system owners collaborate, make collective decisions, and share knowledge across team boundaries.

In many organisations, the greatest challenges in software development are not purely technical but organisational, that is on how to ensure clear communication, consistent task ownership, and timely coordination among multiple contributors. When these social and procedural elements are weak, projects experience delays, redundant work, and reduced quality.

Common issues include unclear task allocation, communication breakdowns between developers and system owners, overlapping responsibilities, inconsistent documentation, and limited traceability of decisions. These problems are amplified in environments where multiple systems and units interact, as seen in large institutions such as universities. Without an integrated platform to manage requests, discussions, and

progress tracking, essential issues often get lost or delayed, ultimately affecting the delivery and sustainability of developed systems.

To address these coordination challenges, structured collaboration tools, such as helpdesk ticketing systems, play a crucial role. A ticketing system provides a centralised environment to collect, organise, and track requests or issues, allowing teams to manage work transparently and systematically. Beyond mere technical support, such systems strengthen accountability, clarify ownership, and promote a culture of responsiveness within development teams.

Thus, the Helpdesk Ticketing System (HTS) was introduced to the development team at Universiti Teknologi Malaysia (UTM), where it serves as an integrated communication and coordination platform between system owners, developers, and researchers. Researchers can report technical issues or suggest improvements directly through the system, ensuring that their requests reach the right personnel.

Before HTS was introduced, communication relied heavily on phone calls, WhatsApp messages, and emails. These informal channels were difficult to monitor, prone to miscommunication, and often resulted in delayed responses or lost information. The absence of a standardised process created uncertainty over responsibilities, made tracking progress difficult, and hindered knowledge sharing among development teams.

Since the implementation of HTS, communication and coordination within UTM's system development environment have become significantly more organised. Records are systematically tracked, issues are assigned to the appropriate personnel, and notifications help ensure that no requests are overlooked. The system has also improved handovers and reduced turnaround times for resolving issues.

This chapter focuses on the team perspective of system development by highlighting the common hurdles faced by developers, such as unclear requests, mixed priorities, dependencies on other units, and loss of contextual information. It also explains how the HTS helps mitigate these issues by standardising request intake, clarifying ownership,

improving inter-team communication, and enhancing overall development efficiency. Through UTM's experience, this chapter demonstrates how a structured ticketing approach can transform fragmented workflows into coordinated, accountable, and high-performing development practises.

8.2 THE EVOLUTION OF TICKETING SYSTEMS FOR TEAM COORDINATION

Effective software development depends on more than technical proficiency, as it relies also on how teams communicate, coordinate, and manage shared responsibilities. As development projects grow in complexity, team members often face difficulties maintaining visibility of tasks, prioritising issues, and ensuring accountability across multiple roles. These challenges can lead to duplicated work, unresolved problems, and reduced efficiency in both development and maintenance phases.

In this context, helpdesk or ticketing systems have evolved beyond traditional customer service functions to become critical coordination tools within software teams (Wang et al., 2011; Paramesh & Shreedhara, 2019). They enable structured communication between analysts, programmers, and system owners by centralising issue tracking, assigning responsibilities, and documenting decision trails. Such systems provide transparency, allowing every team member to monitor progress, understand dependencies, and contribute to faster problem resolution.

Recognising the importance of systematic collaboration, the Deputy Vice Chancellor's Department (Research and Innovation) in UTM explored various tools to improve communication and workflow management among its development teams. Several platforms, including Spiceworks (Spicework Documentations, 2021), Trello (Trello Documentations, 2021), and osTicket, were evaluated to determine the most suitable framework for managing technical requests and system support (Rist & Haslam, 2020). These evaluations included analysing team requirements, understanding existing manual coordination processes, and identifying gaps that hindered efficient teamwork. The goal was to adopt a