2 Why Are Enterprise Applications So Diverse?

Abstract  Today, even small businesses operate in different geographical locations and service different industries. This can create a number of challenges including those related to language, currencies, different regulatory requirements, and diverse industry expectations. For large organizations with a wider reach, the challenges are even greater. As organizations grow, they also need to keep track of huge amounts of information across different business areas. Modern enterprise applications need to be able to cope with these demands in a timely manner. In this chapter we provide a brief introduction to modern enterprise applications, describing selected tasks they perform and the business areas that they cover.

Enterprise applications are software systems that help organizations to run their businesses. They can add a degree of automation to the implementation of business processes as well as supporting tasks such as planning, data analysis, and data management. A key feature of an enterprise application is its ability to integrate and process data from different business areas, providing a holistic, real-time view of the entire enterprise.

Ideally, an enterprise application should be able to present all relevant information for a given context to the user in a timely manner, enabling effective decision making and allowing business departments to optimize their operations. This differentiates enterprise applications from other business software like spreadsheets, which are unable to pull data automatically from all the relevant data sources. Another factor that distinguishes enterprise applications from other types of software is that they are used exclusively in a business setting.

In this chapter, we describe the scope of an integrated enterprise application and resulting requirements (Section 2.1). Section 2.2 presents some selected enterprise application examples. The architecture of enterprise applications is discussed in Section 2.3. Resulting data access patterns are described in Section 2.4 and Section 2.5 closes this chapter.

2.1 Current Enterprise Applications

To get a sense of the variety of functionality that an integrated enterprise system has to cover, we present a view on an enterprise with regard to its divisions in Figure 2.1. An enterprise system is in charge of integrating business processes that
span multiple divisions (horizontal integration). It connects planning and controlling systems with transactional systems (vertical integration).

Enterprise applications not only integrate information processing in homogeneous companies, but also cater to a wide range of different customer groups. For example, SAP Business Suite, the leading integrated Enterprise Resource Planning (ERP) package, is used within a large number of industries ranging from Aerospace and Defense, Telecommunications, and Banking to Industrial Machinery and Components Manufacturing. This leads to a situation of diverse and sometimes contradicting customer demands. For example, the product development and go-to-market lifecycle in the high-tech industry is less than six months, whereas in the chemical, railway, or oil and gas industry such a lifecycle can amount to decades [44, 45]. Companies in each of these diverse industries expects to enterprise system to be tailored for their requirements. To cope with this situation, successful enterprise applications have to allow parameterizations and the creation of industry-specific solutions. This includes giving customers the ability to determine how to query their data and enabling them to specify extensions to the underlying database tables if they need to include information that is not currently stored in the system. Another important customization feature in enterprise software is the ability to adapt existing business processes to customer-specific requirements.

International companies work across multiple time zones and rely on their software being available at all times. No downtime is acceptable. Enterprise applications must meet this requirement. This includes providing mechanisms for