At the same time, *SAP* took the lead in developing new IT systems that would enable higher levels of integration of manufacturing processes, known as 'industry 4.0'. Next-generation systems integrate data across multiple platforms from multiple players in the value chain, including consumers, and thus enable new forms of complex coordination. *SAP* thus invests in new capabilities not only in software and cloud computing but also in helping firms manage those complex systems and to engage stakeholders in discussing the wider social impact of industry 4.0.

Sources: (1) P. Dvorak & L. Abboud, 2007, Internal revolution, *Wall Street Journal Europe*, May 11; (2) A. Kaiser, 2010, Abschied vom nationalen Champion, *Manager Magazin*, February 8; (3) M. Palmer, 2010, SAP vows to return to double-digit sales growth, *Financial Times*, March 2; (4) *Frankfurter Allgemeine Zeitung*, 2011, Wir wollen ein 20-Milliarden-Euro-Unternehmen werden, February 27; (5) T. Weber, 2011, Can software giant SAP survive the IT revolution? *BBC News*, April 28; (6) SAP (2017): *Annual Report* 2016; (7) www.plattform-i40.de; (8) www.sap.com (accessed September 2017).

resource-based view
A leading perspective in global business that posits that firm performance is fundamentally driven by firm-specific resources.

The resource-based view focuses on the inside of the firm, thus complementing the institutional view which focuses on firms' external environment. In business, many key decisions concern the alignment of the firm – and its resources in particular – with its environment. Thus to make the best decisions, you need to understand the inside of the firm as well: which resources add value to a firm such as *SAP*, and how can you systematically assess them? How can firms manage their resources to create value, while protecting them from their competitors? How can you develop new resources?

This chapter introduces tools to address these sorts of questions. We first define resources and then introduce several complementary classification schemes for resources. Then we focus on value (V), rarity (R), imitability (I) and organization (O) through a VRIO framework. We apply these concepts in a value chain analysis on the decision to keep an activity in-house or outsource it. Finally, debates and extensions follow.

IDENTIFYING RESOURCES

LEARNING OBJECTIVE

1 Explain what firms' resources are

competitive advantage
The ability of a firm to outperform its rivals.

primary resources
The tangible and intangible assets as well as human resources that a firm uses to choose and implement its strategies.

capability
Firm-specific abilities to use resources to achieve organizational objectives.

A basic proposition of the resource-based view is that a firm consists of a bundle of productive resources. These provide the basis for firms to attain competitive advantage in their markets; that is the ability to outperform their rivals. Moreover, resources enable firms to grow into new activities and markets.[1]

Resources come in many different forms. For analytical purposes it is often helpful to distinguish between primary resources as the productive assets of a firm, and capabilities as firms' ability to use them. More precisely we define primary resources as the tangible and intangible assets as well as the human resources that a firm uses to implement its strategies.[2] Such resources can principally be purchased on open markets and customized for use. Individually, they are however insufficient to provide an advantage over competitors: firms have to know how to use them. This knowledge and its associated routines and practices are known as capabilities, defined as firm-specific abilities to use resources to achieve organizational objectives. Capabilities are normally developed internally and depend to some degree on tacit knowledge; they are specific to the firm and do not take the form of assets that can be traded or knowledge picked up from a textbook. For example, *SAP* is able to offer better services than its competitors in terms of helping clients to implement *SAP* software. This capability is grounded in specific resources such as the skills of its software engineers and the practical knowledge of its network of specialized business partners. However, the capability 'comes alive' in the processes by which *SAP*'s employees and partners interact and use these resources to create a unique service.[3]