



# Changing a multidomestic production network to a global function network: North America Heinz ketchup from 1960 to 2015



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## ABSTRACT

Two frameworks, the global production network and manufacturing strategy, are used to analyze the North America Heinz ketchup production network during the time period from 1960 to 2015. The frameworks reveal how and why Heinz changed its traditional multidomestic network to a modern global function network. This network enabled Heinz to become the industry's lowest-cost producer while producing the industry's leading product. It is also the network-type Heinz is establishing in its Europe, Asia/Pacific, and Rest of World business units. The analysis gives insight into the usefulness of the two frameworks for analyzing complex production networks.

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## 1. Introduction

This paper uses two frameworks to describe and analyze the North America production network for Heinz ketchup from 1960 to 2015. From its beginning Heinz operated a multidomestic production network. Then in the mid-1990s there was a ten-year period of enormous, sustained pressure to reduce cost. Heinz responded by changing its strategy and transforming its network to a global function production network. Today Heinz produces the industry's leading product and is the industry's lowest-cost producer. These accomplishments are usually conflicting; it is usually not possible to be the lowest-cost producer while producing the best product. Accomplishing both gave Heinz an enormous competitive advantage. It also made Heinz an attractive take-over target. In February 2013 Berkshire Hathaway Inc. and 3G Capital acquired Heinz in a friendly take-over.

Since the ownership change, Heinz has reduced the information it makes public. It is now more difficult than ever to learn the details of Heinz's production activities. It is timely, therefore, to give a careful description and analysis of the production network for Heinz's most important product family, Heinz ketchup. Two frameworks are used: the global production network framework, developed by economic geographers, and the manufacturing strategy framework. The frameworks reveal the changes that were made and the reasons they were made. The analysis gives insight into (i) how a company becomes the lowest-cost producer while producing the industry's leading product, and (ii) the usefulness of the two frameworks for studying complex production networks.

The rest of the paper is organized as follows. [Section 2](#) reviews the two frameworks, links them together, summarizes their application to the Heinz production network, describes the methodology used, and positions the analysis in the literature. [Section 3](#) describes the H.J. Heinz Company and its North American products and production activities. [Section 4](#) examines the ketchup production network from the company's early years to about 1993, from 1993 to 2005, and from 2005 to the present time. [Section 5](#) discusses strategic implications. [Section 6](#) gives conclusions and suggestions for future research.

## 2. Two frameworks for analyzing production networks

Various frameworks are used to analyze production networks. [Friedli et al. \(2014\)](#) give an over-review; see also [Weir et al. \(2000\)](#), [Miltenburg \(2005\)](#), [Rudberg and West \(2008\)](#), and [Cheng et al. \(2011\)](#). Two frameworks are used here: the global production network framework, and the manufacturing strategy framework. The global production network was developed by economic geographers ([Henderson et al., 2002](#); [Dicken, 2003](#)) and is a familiar framework for social scientists ([Reimer, 2007](#); [Coe et al., 2008](#)). It is used in this paper to analyze the social forces shaping the Heinz production network. The manufacturing strategy framework is then used to analyze the detailed design of the network.

### 2.1. Global production network (GPN)

[Fig. 1](#) displays the GPN framework. The bottom of the figure shows three foundations: value, power, and embeddedness, on which the production network rests. The network is further

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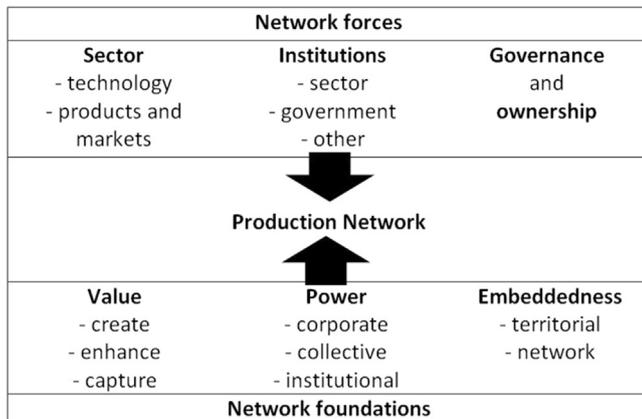


Fig. 1. Global Production Network (GPN) framework.

shaped by three forces: the (industrial) sector in which a company operates, external institutions impacting the network, and how power is exercised through governance and ownership structures.

### 2.1.1. Network foundations

A facility is appropriate for a production network when the conditions for creating, enhancing, and capturing *value* exist. For ketchup the conditions are: tomato growers, low cost labor, process technology, and transportation. *Power* can be corporate, collective or institutional. Heinz, like many other companies, is very centralized; all corporate power resides at head-office. Head-office assigns production tasks and makes resource decisions. Individual facilities have no corporate power. Grower associations, labor unions, and co-processors have almost no collective power. Large retail store chains, which emerged in 2000, have collective power. Governments have a small amount of institutional power. A facility is *embedded* in a geographic location where it absorbs and becomes constrained by the social and economic activities that exist there. From the early years of the company, Heinz became more and more territorially embedded in three geographic locations. With great difficulty it started to break out of this embeddedness in the late 1990s.

### 2.1.2. Network forces

Three forces shape the production network: sector, institutions, and governance and ownership. Companies in the same industrial sector use similar technologies and suppliers, produce similar products for similar markets, and are affected by similar events. *Institutions* such as unions, trade associations (e.g. the California Tomato Growers Association, the Ohio Produce Growers and Marketers Association), and governments all influence the design and operation of the production network. *Governance* and *ownership* structures also shape the network.

## 2.2. Manufacturing strategy framework

The GPN framework ensures that production network design takes account of the three foundations and three forces. The detailed network design is then done in the manufacturing strategy framework (Fig. 2). Two inter-dependent parts comprise the framework: facility-type, and network-type.

### 2.2.1. Facility-type

Ferdows (1997) described the six facility-types: server, outpost, offshore, contributor, lead, and source. While other categorizations are possible (Vokurka and Davis, 2004) this categorization is well-known (Vereecke and vanDierdonck, 2002; Maritan et al., 2004;

Feldmann and Olhager, 2013). Three characteristics help distinguish the six types: strategic purpose, scope of activities, and level of capability (Fig. 2). The strategic purpose for a facility can be (i) proximity to markets, (ii) access to process and product technology, and (iii) access to factors necessary for low-cost production. The scope of activities in a facility ranges from narrow to broad. A facility with a narrow scope of activities only engages in production activities. A facility with a broad scope of activities also engages in some of: sourcing, distribution, design and improvement, and research and development. The level of capability of a facility ranges from low to high. Many years of production, improvement, and investment raise the level of capability from low to high. Level of capability and scope of activities operate in parallel: a facility-type with a broad scope of activities requires a high level of capability. Three facility-types (server, outpost, and offshore) have a narrow scope of activities and a low level of capability. They are predominant in simple production networks. The other three facility-types (contributor, lead, and source) have a broad scope of activities and a high level of capability. They are needed in complex production networks.

### 2.2.2. Network-type

The network-types in Fig. 2 follow Shi and Gregory's (1998) categorization. Other categorizations are possible (Afonso and Fleury, 2009; Jaehne et al., 2009). There are nine network-types: domestic, domestic export, multidomestic, international, multinational, global (function, product, mixed), and transnational. Two characteristics help distinguish the types: pressure for local responsiveness and pressure for globalization. Each pressure ranges from low to high. Pressure for local responsiveness is low when conditions are similar in all regions where a company operates. When conditions vary from region to region, pressure for local responsiveness is higher and the company must operate differently in different regions. Pressure for globalization is high when there are powerful customers, strong competitors and suppliers, low tariffs, free trade regions, and so on (Porter, 1985). When these are absent pressure for globalization is low.

The arrows in the figure linking facility-type and network-type show inter-dependency (Colotla et al., 2003) between facility- and network-types, and that facility location depends on network-type (Hammamia et al., 2008). The arrows indicate that when pressure for globalization is not high it is sufficient to use low capability, local or regional facility-types. When pressure for globalization is high, companies need high capability, dispersed facility-types.

## 2.3. Production network for Heinz ketchup in North America from 1960 to 2015

The next sections examine the North America production network for Heinz ketchup during three time periods: the early years to about 1993, 1993 to 2005, and 2005 to the present time. As depicted in Fig. 3a, we will see that value creation (i.e. growing tomatoes, producing tomato paste, and producing ketchup), power (corporate head-office and institutional large retail-store chains), embeddedness (in the primary North America tomato growing areas), sector technology (large-scale tomato paste production and storage), and ownership (acquisition by Berkshire and 3G) are the important foundations and forces that shaped the production network. As depicted in Fig. 3b, we will see that in the early years to about 1993 Heinz used a multidomestic production network of low capability facilities, from 1993 to 2005 Heinz made major changes to its production network, from 2005 to the present time Heinz used a global function production network of high capability facilities, and indications today are that the network is evolving into a global mixed network.

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