

Chain coordinators and their role in selected food supply chains: Lessons from Pakistan, New Zealand, and the United Kingdom

PERVAIZ AKHTAR, NORMAN MARR, ELENA GARNEVSKA and SHEHZAD AHMED

The main objective of this article is to identify chain coordinators from the selected food chains (dairy, meat, fruits, and vegetables) of small and medium-sized enterprises. The specific competencies of the coordinators were explored – their roles and the nature of chains' coordination – using in-depth interviews with key informants in the UK, New Zealand, and Pakistan. The results show that chief executive officers in medium-sized companies and managing directors/owners in small businesses are strategic coordinators; operations coordinators also handle activities at operational level. The effectiveness of chain coordination and relationships is a function of these chain coordinators' innate or acquired abilities, available tangible resources, and their actual efforts to effectively utilize the resources for all coordination activities. Furthermore, an integrated chain system that supports small farmers is essential to achieve successful coordination. Two-way information sharing and advance payments to the farmers also assist in achieving coordination objectives and effective production.

Keywords: chain coordinators, food chains, coordination effectiveness, PK, NZ, UK

THE PROGRESSION OF COORDINATION in food chains has been broadly recognized in academic literature during recent years. Food chains such as dairy, meat, fruits, and vegetables have become a network of complex relationships. This interconnected system has to be coordinated effectively and efficiently in order to meet new challenges such as faster deliveries, higher stakeholders' expectations, lower costs, lower wastage rates, and a balance of coordination among chain players (Gereffi et al., 2005; Akhtar et al., 2011). The chain players (farmers, processors, distributors, and retailers) share data, information, and processes to keep the whole system connected. Furthermore, in coordinated chains, goods are supplied based on contracts or verbal agreements. This system of working together is

Pervaiz Akhtar, Norman Marr, and Elena Garnevska are with Supply Chain Management and Logistics, Institute of Food, Nutrition, and Human Health, Massey University, New Zealand, and Shehzad Ahmed is with the Logistics Institute, Business School, University of Hull, Hull, UK.

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Who possess coordination functions in food chains and what characteristics are indispensable to manage the coordination?

termed 'coordination', and it creates value for all parties involved (Wysocki et al., 2003; Akhtar et al., 2011).

One of the current debates in the literature is who possess the coordination functions in food chains and what characteristics are indispensable to manage the coordination effectively. The development of coordination in small-medium enterprises (SMEs) depends on chain coordinators (Akhtar et al., 2011) who are key players involved in decision-making, leading, and controlling chain activities or resources. They also maintain the balance of relationships among chain actors (Heggde, 2008; Belaya et al., 2009). This role is played either by an organization or by an individual. Previous research has shown that large powerful retailers or distributors are chain coordinators. For example, Smith (2006) considered Tesco (a UK-based retailer) as a chain coordinator. A number of studies (Kemppainen and Vepsalainen, 2003; Mehta et al., 2003; Rosenbloom, 2004; Heggde, 2008; Cao et al., 2008) have identified top sales and marketing executives, chief executive officers (CEOs), and managing directors as having the role of chain coordinators, and this is the focus of this study.

Several authors (Mehta et al., 2003; Ness, 2009; Shapiro, 2001) have shown that there is a strong link between the characteristics of chain coordinators and coordination success. Little is known, however, about who the chain coordinators are, and what prerequisite capabilities they need to successfully coordinate modern chains. In order to fill the information gap, this empirical study of selected food chains (dairy, meat, fruits, and vegetables) was conducted in Pakistan (PK), New Zealand (NZ), and the United Kingdom (UK). This study aimed to:

- identify chain coordinators and the activities in which they are involved;
- probe certain competencies of chain coordinators and coordination resources;
- highlight the nature of coordination.

This paper is structured in four sections: first the background to the study; second, the methodology; third, the results and discussion; and finally conclusions and future research requirements.

Background

Effective chain coordinators need to reconcile different coordination aspects

Effective chain coordinators need to reconcile different coordination aspects such as sustainable commitment, financial performance, effective leadership, and fair sharing of risks and benefits among chain partners. Furthermore, recent global developments such as food safety regulations, high consumer demands, economic downturns, and unstable political environments in certain countries,

Education and experience are key elements for chain coordinators to understand coordination problems

A consultative management style has a significant correlation with chain members' motivation

Different chains have diverse power systems and contrasting buyer–seller relationships

have made it more difficult to achieve chain coordination objectives. The effectiveness of coordination in such challenging environments depends on the existence and/or the development of certain characteristics that successful chain coordinators must possess (Patzelt and Shepherd, 2008).

Lack of experience and education means that chain coordinators cannot fully understand risks and coordination opportunities. Relevant food chain education and experience are the key elements for chain coordinators to understand coordination problems. These factors also help coordinators to handle difficult situations, adapt to different cultures, and mediate between international and local coordination practices (Heimeriks and Duysters, 2007; Akhtar et al., 2011).

Furthermore, the leadership styles and methods of chain coordinators are pivotal to motivate chain partners. For example, a consultative management style (i.e. sharing decision power) is often used by successful coordinators. This style has a significant correlation with chain members' motivation (Mehta et al., 2003). Chain coordinators' ability to effectively utilize resources is also a pivotal factor for coordination success. This enables them to arrange coordination activities such as meetings and travel; to acquire effective information technology and office equipment; and to employ qualified staff (Kaplan and Norton, 2008; Akhtar et al., 2011).

Methodology

Multiple chains from PK, NZ, and the UK were selected for several reasons: first, multiple industries help to explore a wide range of chain coordinators' practices; second, this gives an opportunity to test different marketing practices, because different chains have diverse power systems and contrasting buyer–seller relationships; and third, a wide range of targeted chains can give better chances to access a large number of chain coordinators as previous researchers such as Kale et al. (2001) and Mehta et al. (2003) believe that there are only a few chain coordinators' positions that formally exist in chains.

Based on a questionnaire, face-to-face or telephone interviews were conducted in English. Detailed notes were also taken during the interviews. The interviews explored specific information on the activities of chain coordination, chain coordinators' character, and the characteristics of their job. Each interview took 60–90 minutes. Immediately after the interviews, informal conversations were also held to check whether respondents had anything else to add. The consistency of respondents' answers was checked during the conversations by repeating questions asked during the interviews. Notes from these observations were employed to compare respondents' answers to the objectives of this study. The literature was used to support the

The first objective of the survey was to identify key chain organizations

arguments where possible. The results were triangulated using these multiple resources, which ensured reliability and validity of the data (see Ellram, 1996).

The first objective of the survey was to investigate chains (from farmers/suppliers to retailers) and to identify a key chain player as an organization (wholesaler/processor/manufacturer/retailer). The second task was to identify chain coordinators (as a person) and their job characteristics.

Retailers were visited and the contacted persons (managers/directors) were asked which chain player makes the major decisions in their chains and why. They identified chain coordinators as wholesalers in fruit and vegetable chains; processors or retailers in meat chains; and manufacturers or distributors in dairy chains. These people are also often involved in imports and exports of products. In the same chains, pre-harvest contractors and farmers were interviewed by telephone and asked their opinions on the role of chain coordinators. Their replies were consistent with retailers' suggestions.

Secondly, contacted persons were asked about the existence of chain coordinators' position(s) in their organization

Secondly, the contacted persons (managers/directors) within the identified organizations (wholesalers/processors or retailers/manufacturers or distributors) were asked about the existence of chain coordinators' position(s) in their organizational chart. If they did not have chain coordinator(s) in their organization they were also asked who is responsible for chain coordination activities. Finally, the responsible persons for coordination activities were chosen for final interviews.

Results

Table 1 shows the characteristics of the respondents. A total of 24 semi-structured interviews (12 from Islamabad, PK; six from Auckland, NZ; and six from London, UK) were taken from 14 managing directors/CEOs, two supply chain managers, two area sales managers, two stock controllers, two store managers, one business development manager, and one relationship manager. A response rate of 87 per cent, 20 per cent, and 17 per cent was received from Islamabad, London, and Auckland, respectively.

Table 1. Characteristics of respondents

<i>Countries</i>	<i>Job title</i>	<i>Education</i>	<i>Experience (years)</i>
Pakistan (12)	MD or CEO (6), ASM (2), SM (2), SC, and RM	Primary school-undergraduate	3–20
New Zealand (6)	MD or CEO (4), SCM, and SC	High school-postgraduate	4–12
UK (6)	MD or CEO (4), SCM, and BDM	High school-postgraduate	3–12

Note: MD, managing director; CEO, chief executive officer; ASM, area sales managers; RM, relationships manager; SM, store managers; SCM, supply chain manager; SC, stock controller; BDM, business development manager

We used an international definition of SMEs and selected companies that had fewer than 250 employees (Brown and Lockett, 2004[Q2]; Xu et al., 2007). A total of 10, 6, and 8 respondents participated from vegetable and fruit, dairy, and meat chains, respectively. Overall, 58 per cent of respondents claimed top management positions and 42 per cent declared middle management positions.

Results showed only 4% of companies have a formal job title of chain coordinator

Chain coordinators and their characteristics

The results showed that only 4 per cent of companies have a formal job title of chain coordinator in their organizational structure. Table 2 depicts the differences and similarities found in the chains in each country.

Table 2. Similarities and differences between chain coordinators in different countries

<i>All countries</i>		
Similarities		
Strategic chain coordinators	Managing directors or owners in small companies, CEOs in medium-sized companies	
Operations chain coordinators	Regional or area sales managers, supply chain managers, store managers, department managers, customer relationship managers, business development managers, stock controllers, and buyers	
Chain coordinators' responsibilities	They act as a communication hub in chains and control coordination by balancing the supply and demand of products and relationships among chain players	
Skills	Communication (particularly face to face), checking product quality, resolving conflicts, purchasing (e.g. knowledge of product prices and transport costs), management of staff, relationship management with chain partners, time management (e.g. deliveries on time), personal relationship management with main chain partners, marketing (e.g. advertising and product promotion through local media), and research (e.g. the suitability of new partners or a new branch) Training for operations coordinators: Communication (how to deal with people from different cultures), quality checking, promotions (e.g. how to demonstrate/present products to customers), and performance measurement of relevant area (strategic coordinators often attend professional seminars and workshops to update their skills profile)	
Chains:	Farmers → pre-harvest contractors → wholesalers → retailers → consumers	
Differences		
	Pakistan	UK and New Zealand
Management style	Mostly directive	Mostly participative
Coordination level	Low–medium	Medium
Coordination resources	Personal/company cars, phones, business cards, credit cards, computers, fax machine, internet, coordination budget, public transport, and motorcycles	Except for motorcycles and public transport, all coordination resources are the same as in Pakistani chains
Chain coordinators' experience and education	Education level basic school to Master's degree and experience 3–20 years	Education level Bachelor to Master's degree and experience 3–12 years

Wholesalers, who also import and export, act as chain coordinators and play a pivotal role in coordinating chains. Sometimes these coordinators are known as manufacturers, distributors, or processors, depending on the nature of the chains and products. Within these organizations, managing directors or CEOs are coordinators who are involved in strategic-level chain activities. In small businesses, the managing director or owner operates as the strategic coordinator while CEOs have the role of the coordinator in medium-sized organizations.

Strategic coordinators make major decisions regarding pricing, sales management, selection of new partners, market growth, employees' pay scales, and analysing overall financial performance. Their decisions are final and no one can rule against them. These coordinators often also make decisions about hiring staff (e.g. selecting seasonal staff for the fruit chain in small businesses). These strategic coordinators also engage in recruiting operations coordinators who are involved in operations-level activities in the chains. The operations coordinators are middle-level management staff including regional or area sales managers, supply chain managers, store managers, customer relationships managers, business development managers, stock controllers, and buyers. They handle activities such as controlling stock, transport, supply of products, handling daily complaints, short-term contracting, relationships management, and preparing and analysing reports.

The survey also found that chain coordinators act as communication hubs in the chains, and they are involved in a wide range of activities. One chain coordinator said: 'The constant communication with our (chain) partners and transport department is a vital factor to make sure the deliveries are on time and improve our service level'.

Chain coordinators' skills, such as innate or acquired leadership, play a major role in the development of coordination and chain performance. Apart from a reasonable education and experience, the competence of a chain coordinator particularly depends on effective communication, ability to judge product quality, knowledge of product prices and transport costs, selecting reasonable chain partners based on their research, effective promotion of products, resolving day-to-day conflicts and maintaining good relationships, and exploring internal and external opportunities. In addition, training in communication (how to deal with people from different cultures), performance measurement of relevant areas, and promotions (e.g. how to demonstrate and present products to customers) play an important role in achieving effective chain coordination. One operations coordinator reveals: 'Salesmen play a fundamental role to increase our sales (and) we provide them regular training (in) how to present and sell products...it also focuses on retaining our valuable customers.'

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Pakistan

In PK, meat and dairy chains generally consist of farmers, suppliers, wholesalers, manufacturers, processors, retailers, and consumers. The fruit and vegetable chain consists of farmers, forward contractors (pre-harvest contractors/processors), wholesalers (*arhtis* or commission agents), retailers, and consumers. Farmers retain seed from the previous year or purchase it from wholesalers or other farmers for the next production season. Sometimes small farmers cannot manage land and produce because of a lack of financial resources, and they therefore make agreements with pre-harvest contractors to do this.

In Pakistan,
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Wholesalers have the role of communication hub and they also support the farmers by providing credit on a regular basis. They may purchase produce from farmers or manage auctions in which products are sold. Farmers or pre-harvest contractors cannot sell products directly in auction markets because of a lack of financial resources or infrastructure. The wholesalers charge 6–7 per cent commission for selling products to retailers. Retailers also obtain products directly from wholesalers as well as from auctions, often based on credit. The amount of credit depends on the financial condition of retailers, long-term personal relationships and coordination. Effective inventory management is also based on the foundation of coordination and collaboration, where chain partners have strong linkages regarding two-way information sharing, electronic data interchange, joint planning, sharing of technology, and other resources.

The coordination pattern in Pakistani food chains is low-to-medium: there is limited or less integrated coordination, particularly in fruit and vegetable chains. As one of the chain coordinators said: 'We feel there is lack of coordination, particularly with smaller suppliers as they do not have a standardized system or they cannot afford modern technology.'

Another chain coordinator reported: 'Suppliers do not share processes and enough information which create invisibility of the products... As a result, we face problems like shortage of stock, longer lead times and late deliveries.'

In addition, in fruit and vegetable chains, there is no proper system for forecasting supply and demand for products, which could be a reason for the limited scale of contract farming and low coordination. The farmers push products to wholesalers and this pushing system continually creates problems of under- or over-supply. Also, small-scale suppliers lack essential infrastructure such as storage systems for highly perishable products such as mangoes and milk. 'Often we face a shortage of milk or quality problem because we cannot store it (milk) for longer time as we do not have good storage system', says one coordinator from a dairy chain.

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Similarly, often suppliers cannot store mangoes for extended periods owing to a lack of technical knowledge and resources. This also has an impact on the export of mangoes to countries such as New Zealand that have longer chains. However, Agriculture Corner (2010) revealed in 2010 that Australia imported mangoes from Pakistan, which means that facilities do exist to store mangoes for a longer time. The nature of the Pakistan–Australia chain and Pakistan–New Zealand chain is not much different, and mangoes can be imported to New Zealand along with other agricultural products. Regarding exporting and farmers’ support, one chain coordinator said:

Foreign exporters or governments do not prefer small farmers and exporters only get products from bigger suppliers and they ignore us...we (small farmers) do not have enough subsidiaries from the government...we are (also) not able to get loans from the banks as we cannot show big assets or guarantee what the big farmers can do.

In Pakistan, chain coordinators often rely on experience rather than on education

In Pakistan, chain coordinators often rely on experience rather than on education: experience and innate leadership style (mostly directive) are the most important factors (e.g. experience of checking the quality of products). A chain coordinator said: ‘We judge the quality of animals (livestock) by examining healthy condition of udder and teats of animals, and it depends on our past experience.’

Similarly, according to another chain coordinator, they check the quality of milk by its physical appearance based on experience. If they have doubts about the quality, they check it using the *Mahwa* process (boiling milk until it changes into the condensed form). If the condensed weight is between 230 and 250 g from 1 kg of milk, the quality is considered very good, whereas the quality of milk is unacceptable if the weight is less than 150 g. Chain coordinators also believe that experience in fields such as personal relationship management for trust creation, customer service (e.g. deliveries on time and handling complaints), health and safety of products, performance measurement, marketing, and research is also vital for their job.

Chain coordinators also believe that they can perform better if they have technical and supply chain management/business-related education. A chain coordinator from the fruit and vegetable chain said: ‘I want to expand my business internationally but I cannot understand the process of importing and exporting of products (e.g. documentations requirements and international food and safety standards) due to lack of my education.’ They also feel language barriers. Chain coordinators’ education varies from basic school level to Bachelor’s degree. It is also noticed that supply chain management concepts have not been fully developed in PK.

Chain coordinators use different resources for coordination or communication activities, including personal/company cars, phones, business cards, credit cards, computers, fax machines, internet, public transport, motorcycles, and coordination budget. In-person visits and telephones are mostly used for communication and coordination activities.

New Zealand and the UK

The selected food chains in NZ and the UK normally consist of farmers, processors/manufacturers, wholesalers, retailers, and consumers. Chemical dealers and cooperatives are also part of these chains. The coordination activities are the same as those found in Pakistani chains. The chains are integrated through cooperation between retailers and processors and processors with farmers. In NZ and the UK, large supermarkets also play a major role in coordination activities. One of the main reasons is that they are closer to consumers; they know the market demand and how to fulfil it. They are also financially stronger than other parties. Supermarkets have the choice of selecting suppliers for a variety of innovative fruit and vegetable products (chopped, washed, bar-coded, labelled, combined in different ways, and with longer expiry dates).

In SMEs, the degree of coordination is medium: chain coordinators (manufacturers, wholesalers, distributors, and processors) concentrate on coordination rather than arms-length relationships. They are also aiming to work with fewer and larger suppliers who can provide stock regularly. There is, however, little coordination among chain players in forecasting the demand of products. Farmers/processors in particular are not connected with consumer demand. Different chain players make independent forecasts and consequently they have short stock, longer lead times, and late deliveries. Only limited contract-ordering and partnerships exist. Wholesalers order a quantity of products according to contracts but they often alter their orders. One of the chain coordinators from a NZ meatchain said: 'We often change our orders but we have to tell our suppliers at least a day in advance and we use both oral and written contracts.'

Apart from leadership (mostly participative leadership style, sharing decision power), experience and education are equally important to chain coordinators in NZ and the UK. Most chain coordinators believed that a Master's degree in business/supply chain management is important for their job. They stated that it helps them to understand strengths, weaknesses, opportunities, and threats in micro- and macro-environments. The concepts of supply chain management are more developed in the UK than in NZ.

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Chain coordinators use the same tangible resources as coordinators in PK, but public transport and motorcycles are not used in NZ and the UK. Cars are more affordable in developed countries and chain coordinators prefer to visit by car rather than by public transport. Phones and emails are considered vital resources for communication or coordination activities and the reason that written and oral communication skills are considered essentials for coordinators.

Discussion

The findings of this study, with regard to identification of chain coordinators, are consistent with Mehta et al. (2002), Miller (2006), Rosenbloom (2004), and Heggde (2008). The study also found that formal and informal chain coordination teams exist. No single person handles coordination activities of the selected food chains, which is consistent with the results of Kale et al. (2001). This study confirms the work of Mehta et al. (2002), who provided evidence that only a few companies officially have a chain coordinator's position within their organizational structure. Kale et al. (2002) believed that 37 per cent of organizations have formal and informal teams for coordinating activities. Furthermore, there is no standard definition of a chain coordinator and no clear distinction has been made between a chain coordinator and a channel coordinator. A number of researchers (Mehta et al., 2002; Kale et al., 2002; Kempainen and Vepsalainen, 2003; Rosenbloom, 2004; Miller 2006; Heggde, 2008; Tipples, 2008) believed that a chain coordinator's role is performed by different people such as CEOs, sales managers, proprietors, and business development managers, and there is no agreement on a single position that acts as a chain coordinator. Therefore, the identification of chain coordinators was one of the major challenges and the objectives of this study.

The result of this study is vital in the context of coordination; companies often emphasize working together to achieve certain objectives, and these practices influence chain performance. Furthermore, the coordinators are involved in intra- and extra-organizational coordination, and they can play a pivotal role in integrated and interdependent chains.

A proper integrated chain system, particularly in PK, is necessary to support small farmers/suppliers. The system should be able to connect all chain players, especially farmers, to consumers' demand. Furthermore, timely and accurate two-way sharing of information (e.g. quality and quantity of products) between retailers and farmers can help reduce problems such as under- or over-supply of products. Advance payments to farmers also assist them to manage the necessary resources for effective production.

Timely two-way
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over-supply

The involvement of farmers in chain coordination is observed in the UK and NZ chains. All involved or dependent chain players work together to meet challenges such as higher speed, better quality, and food safety standards. They also encourage open communication and transparency. This system is a foundation for their long-term coordination and it also builds trust among them.

Conclusions and future research

The main contribution of this paper is to identify chain coordinators who act as a communication hub. At the organizational level, wholesalers, manufacturers, and distributors (importers and exporters) are chain coordinators, depending on the nature of their business. Managing directors/owners in small businesses and CEOs in medium-sized enterprises have the role of strategic chain coordinators within the selected organizations (wholesalers, manufacturers, and distributors). These coordinators are the key decision makers and their decisions cannot be overruled. Regional or area sales managers, supply chain managers, store managers, customer relationship managers, business development managers, stock controllers, and buyers are operations coordinators and they handle operational-level activities. The nature of coordination and preferences of chain coordinators are different in developed (NZ and the UK) and developing (PK) countries. Furthermore, the job requirements of chain coordinators also vary from chain to chain.

Chain coordinators' innate or acquired abilities (leadership styles, relevant education, and experiences), communication skills, and the effort that they put into coordination functions are the key elements which affect coordination outcomes. The competence of a chain coordinator also depends on other factors such as their ability to judge product quality, knowledge of product prices and transport costs, finding opportunities, effective promotion of products, resolving day-to-day conflicts, and maintaining good relationships with chain partners and staff. Additionally, training plays a pivotal role in strengthening the skills of chain coordinators. In short, a combination of tangible resources (such as adequate communication technology, transport, and financial resources) and intangible assets (e.g. chain coordinators' leadership) are the key determinants of the effectiveness of chain coordination.

Moreover, a proper integrated chain system that supports small farmers and suppliers is essential to achieve successful coordination. The system should be able to connect all involved parties, especially farmers, to consumer demand. Timely and accurate two-way sharing of information and advance payments to farmers also assist in achieving coordination objectives and effective production.

A combination of tangible resources and intangible assets are key for effective chain coordination

Future research requires an investigation of the relationships between the characteristics of chain coordinators and food chain performance. Furthermore, what is meant by the 'success' of coordination for chain coordinators, and how can it be measured? Finding answers to these questions will contribute to keeping the entire chain system functional, as well as being beneficial for all parties involved.

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