Critical organizational events and emergent knowledge strategy: a retrospective processual analysis

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Abstract

The prior studies in the knowledge management area have established the argument that knowledge plays a critical role in the development, survival and growth of firms, by contending that knowledge leads to achieve sustainable competitive advantage. However, a review of the literature shows that our understanding of the spillovers of knowledge acquired or transferred and particularly the impact of knowledge requirements on strategy is limited. This empirical paper explores those issues by identifying and explaining the critical organizational events of two case study companies. The methodology adopted in this paper is based on the retrospective processual approach. The findings show that organizational critical events were either a result of knowledge lacking in organizations or the exploitation of existing knowledge, indicating link between knowledge, strategy and critical organizational events. It was also found that strategy (knowledge) changed over time due to internal factors (knowledge requirements) and external factors.

Keywords: Knowledge strategy; Time; Event analysis; Spillovers

Suggested track: (A) Managing organizational knowledge and competence

Introduction

Knowledge in strategic management, international business and organizational development literatures has been recognized to play a critical role in the development and growth of firms. Prior studies in this area have established this argument by contending that organizational knowledge leads to attain sustainable competitive advantage (Argote & Ingram, 2000; Eisenhardt & Martin, 2000; Gulati et al., 2000). However, a critical review of the knowledge management literature shows that in spite of the fact that a number of studies have looked into the nature and the type of knowledge and knowledge transfer processes (Badaracco, 1991; Gulati, 1998; Inkpen, 1998; Kogut and Zander, 1992; Nonaka, 1996), our understanding of the spillovers of knowledge acquired is limited. Furthermore, the impact of the acquisition of new knowledge on corporate strategy and the evolution of knowledge strategy (Pfeffer & Sutton, 2000; Zack, 1999) requires further explanation. This paper explains these issues in detail by identifying and interpreting the critical organizational events of the case study companies.

To investigate the changes taking place in the organizational knowledge strategy over time and to study the spillovers of these changes the methodology adopted is based on the retrospective processual approach using case studies. The basic tenet of processual research is to unfold the events over time (Pettigrew, 1997) which suites the objectives of this paper. The data for the last 40 years on the development and growth of the two case study companies were collected using both primary and secondary resources. From secondary resources critical organizational events in the life history of the case study companies were identified. These critical events were further explored during interviews and in total 97 in-depth semi-structured interviews were carried out in two Pakistani automotive companies.

The findings of this study show that the critical events in the life history of the two case study companies were either a result of knowledge lacking in organizations, which was identified to be critically important for their survival and growth, or the exploitation of existing knowledge. The unfolding of these events also shows that these events lead to companies capitalizing on their knowledge-based competencies and capabilities. Companies were found to form international alliances to acquire knowledge lacking leading to knowledge exploration strategy. Whereas, in order to develop the local industry, companies were often found to transfer knowledge to local firms, leading to knowledge exploitation strategy. On

adopting knowledge exploration or exploitation strategy (March, 1991) it was found that critical events were either the result of change in the knowledge strategy in past or led to the adoption of a different knowledge strategy for the future. In a nutshell, it was found that organizational knowledge strategy not only changes due to companies' internal knowledge requirements which were assessed through strategy formation but also due to external factors such as governmental policies and industrial trends which lead to the need to acquire new knowledge.

Theoretical background

Theoretically, this paper is rooted in international business, knowledge management and organizational development disciplines. A review of the international business literature shows that research on inter-firm alliances has received growing attention during the last two decades, reflecting the importance of alliances. Koza and Lewin (1998) have argued that the research on alliances has become something of an industry, challenging the traditional centrality of the firm as a focus for research. A review of literature on alliances shows that prior research on alliances includes the studies of alliances' alternative governance mechanisms (Balakrishnan and Koza, 1993; Buckley and Casson, 1988; Kogut, 1988); the antecedents, structures, and functions of alliances in an international contexts (Beamish, 1985; Contractor and Lorange, 1988; Reuer and Miller, 1997); incentive issues, such as contracting, opportunism, and trust (Gulati, 1995a; Parkhe, 1993); alliance success, failure, and stability (Doz, 1996; Parkhe, 1993); guidelines for the better management of alliances (Doz, 1996; Harrigan, 1985 and 1988; Killing, 1982), and inter-organizational relationships and networks (DiMaggio and Powell, 1983; Fombrun and Astley, 1983; Oliver, 1990; Gulati, 1995b). However, another stream of researchers has looked at alliances from the perspective of inter-firm knowledge transfer and organizational learning (Badaracco, 1991; Gulati, 1998; Inkpen, 1998; Zajac, 1998). This growing body of literature argues that the primary objective for establishing alliances is to acquire knowledge, skills and expertise from alliance partners to enhance organizational capabilities and competencies (Hamel, 1991; Inkpen, 2000; Kogut, 1989; Mowery et al., 1996). Some researchers have also argued that an important explanatory factor for developing organizational capabilities and competencies and the growth of the trend in alliance formation is that alliances provide an excellent platform for organizational learning through gaining access to partners' knowledge. They argue that unlike other learning contexts, the formation of an alliance reduces the risk that the knowledge will dissipate quickly (Powell, 1987). However, despite

the substantial number of studies on alliances, there is little explanation of the spillovers of the knowledge acquired through alliances at the firm level.

On the other hand, knowledge in strategic management, international business and organizational development literatures has been recognized to play a critical role in the development and growth of firms. Consequently, knowledge in organizations has been studied from many different theoretical and practical perspectives. For example, scholars have look at the different aspects of knowledge such as types, nature and movement of knowledge within and between organizations (Blackler, 1995; Nonaka and Takeuchi, 1995; Spender, 1996; Tsoukas and Vladimirou, 2001). Moreover, knowledge has also been discussed in detail in relation to different processes, which companies go through to acquire, transfer, and create knowledge with the help of alliance partners to achieve sustainable competitive advantage (Baum & Ingram, 1998; Cohen & Levinthal, 1990; Epple et al. 1996; Mowery et al., 1996; Nonaka & Takeuchi, 1995; Simonin, 1999; Spender, 1996; Zaheer et al., 1998). However, despite a tremendous increase in the number of studies on knowledge, the impact of knowledge acquisition or knowledge transfer over time on corporate strategy has not been explored extensively in the literature. Some initial attempts in this area include the work of Pfeffer and Sutton (2000) in which they introduced the concept of 'knowing-doing gap' and the work of Zack (1999) in which he discussed the need and significance of an organization-wide knowledge strategy.

Pfeffer and Sutton (2000) argued that firms should not only attempt to identify the knowledge possessed by their employees but should also devise a strategy to apply that knowledge to practice. They argued that often firms fail to capitalize on the knowledge possessed by their members. On the other hand, Zack (1999), acknowledging the importance of knowledge for the survival and the growth of firms, suggests that it should be treated as an integral part of the firm's strategy. In this regard he talks about the concept of a 'knowledge strategy'. The concept refers to the fact that organizations should be able to align their knowledge resources and capabilities to their strategic development activities. This can be achieved mainly in two ways. Organizations may either have to acquire new external knowledge in a particular area, or the may further exploit and leverage their existing underutilized knowledge resources.

In this paper, we have used the concept of 'knowledge strategy' to study the spillovers of the knowledge acquired through alliances. We argue that a firm's knowledge strategy, which is often developed on the basis of a firm's SWOT analysis (Zack, 1999), leads to the identification of the nature and the types of knowledge which a company would like to either

share with other companies by forming alliances (adopting a knowledge exploitation strategy) or would like to acquire from alliance partners (adopting a knowledge exploration strategy). In both cases, companies would either extend their existing alliance or form new alliances. In case of a knowledge exploitation strategy, companies share the knowledge acquired through international alliances with local companies and this practice leads to the development of new capabilities and competencies at local firms level. Whereas, in the case of a knowledge exploration strategy, companies understandably form international alliances so that new knowledge from international alliance partners can be acquired and internalised to develop their own capabilities and competencies.

We studied the above aspects of knowledge spillovers by analysing the critical organizational events in the life history of two case study companies. We assumed that if knowledge plays a critical role in organizations and if organizations form and implement a knowledge strategy then these aspects should also be highlighted in the analysis of the organizations' critical events. In other words, the explanation of those events should provide support for the questions raised in this paper. Before moving to discuss the findings of this study we briefly review the methodology adopted in this paper.

Methodology

In this paper we have adopted a retrospective processual approach to investigate the changes in organizational knowledge requirements and their impact on the knowledge strategy using case studies. We believed that, while most of the prior studies on the related topic looked at some of these aspects at any given time and have focused on initial conditions and outcomes of alliance, a historical view on these aspects (over time) and a detailed study of the underlying processes would be more suitable to explore issues identified in the previous section. The focus of the retrospective processual analysis is on explaining processes of change and interpreting historical events. According to Pettigrew (1997) time and history are at the centre of any process analysis and the basic tenet of any processual research is to unfold events over time. As mentioned earlier, besides time and history, another element of the retrospective processual analysis is 'process'. Pettigrew (1997) defined process as a sequence of individual and collective events, actions, and activities unfolding over time in context. Although the focus of any processual analysis is on time and history, it does not stop by just reporting events in time. Rather the aim of a processual analyst is to describe, conceptualise, analyse, measure, and explain the events or issues over time in the shape of a case study, not of a case history.

It has been acknowledged that there is not a set format on conducting processual research as the field of processual research is still emerging and its boundaries are debatable (Orton, 1997). In this study, we conducted 97 in-depth semi-structured interviews in two Pakistani companies operating in the automotive industrial sector. Interviews were carried out in three different languages and the respondents were purposefully selected from different organizational positions and different hierarchical levels. The respondents were asked to reflect upon the critical events which took place in the company over time. These critical events were identified from the analysis of secondary data (for the last fifty years) and were also reported by the top management during the first phase of interviews. In the second phase of data collection particular attention was paid towards unfolding events over time. The analysis of the critical organizational events in relation to the adoption of a particular knowledge strategy and the related knowledge spillovers is presented in the analysis part.

Analysis of critical organizational events

By the term 'critical organizational events', we mean an event in the history of the case study companies which was identified and confirmed by most of the respondents to be important enough to have lasting effect on organization's development and growth and the evidences of which were also found from secondary and other sources. We also used financial data to analyse the financial performance of the case study companies around the time of the critical events. This simple analysis shows that sales of both case study companies, either jumped or fall leading to a critical events or because of a particular event confirming the criticality of those events (see appendices 1 & 2). The critical organizational events, analysis of those events in respect of knowledge requirements, and the strategies adopted to meet those knowledge requirements are presented in tabular format (Table 1 and 2) and are briefly discussed below.

TABLE 1. MTL: Critical events, knowledge requirements and strategies adopted

CRITICAL EVENTS	KNOWLEDGE REQUIREMENTS	STRATEGIES TO MEET KNOWLEDGE REQUIREMENTS
Assembling and Manufacturing Operations and Nationalisation	Assembling and manufacturing capabilities gaps, equipment and skills gaps	Started importing tractors in a semi-knocked down condition from Massey Ferguson in the UK (1964)
	Moving away from assembling to manufacturing and achieving deletion targets. To start bring in technology and technical know-how.	Licensing and technology transfer agreement with Massey Ferguson (UK) (1973) Licensing and technology transfer agreement with Perkins (UK) (1973)
	To assemble and manufacture low power capacity tractor	Licensing agreement with ShangDong Tractor (1992)

	Identified new markets/opportunities	Licensing and technology transfer agreement with Maschio for agricultural Implements (1989)
	To solve casting quality control problems	Buy out of Bolan Castings (1993)
	Growth in market coverage	Added a new tractor assembly plant (1989)
Establishment of Engine Assembly Plant and Kaizen Practices	To start manufacturing and assembling engines locally	Inauguration of engine assembly plant (1980)
	Identified new market/opportunities	Perkins Distributor agreement (UK) (1990)
	Identified new market/opportunities	Multi-application products launched (1990)
	Identified market opportunities	Started Commercial Production of Generating Sets (1994)
Deletion Policy	Government introduced Deletion Program (1981)	R&D department established (1981)
	To achieve government set deletion target	
	To procure better quality parts	Investment in Baluchistan Wheels (1982)
Machining Division	To start machining facilities in-house	Inauguration of Machining Division (1984)
Diversification and Privatisation	Identified new market/opportunities	Launched diversification programme (1992)
	To assemble and manufacture fork-lifts in-house	Licensing agreement with Beijing Forklift for Forklift (1992)
	To produce quality Generators in company	Licensing agreement with Leroy Somers for Alternators (France) (1995)
	Identified market opportunities	Agreement with JAKAB for design of specialist vehicles (Australia) (1996)
	Identified market opportunities	Joint venture with Ssang Yong Motor Corporation, for the luxury four-wheel drive Jeep (1998)
	To achieve high quality and maximum output	Manufacturing machinery and quality control equipment validated through the suppliers (1999)

TABLE 2. AHL: Critical events, knowledge requirements and strategies adopted

CRITICAL EVENTS	KNOWLEDGE GAPS 'IDENTIFIED' OR 'IMPOSED'	STRATEGIES TO FILL THE KNOWLEDGE GAPS
Joint venture agreement with HMCJ	Manufacture Honda Motorcycles, gaps related to Shock absorber, R&D Wing and Tool Making facilities	Technical Assistance Agreement signed with Honda (1962)
	To start manufacturing and assembling locally	Renewal of Technical Agreement with Honda (1974)
	Development of technically sophisticated parts	Joint venture agreement signed with HMCL (1988)
Merger of Panjdarya Ltd. with Atlas Autos Limited	Market expansions/ new opportunities	Incorporation of Panjdarya Limited as Joint venture with Honda (1979)
	To achieve synergistic effects	Merger of Panjdarya Ltd. Into Atlas Autos Limited
Changes in management system	Facing challenges of structural re-adjustment, re-culturalisation and re-organization of the company	Change in Management System (1980)
Development of production capabilities	Developing facilities in-house	Investment of PRs. 210 Million to manufacture Crankshaft in-house
	Technical know-how for engineers, foremen and workers	Set up a technical training centre at Lahore
Export and export agreement	Market opportunities	Export of build up motorcycles to Nepal (1989)
	Market opportunities	Export agreement signed with HMCL (1995)

	Company has been striving to implement govt. policy	Investment at Panjdarya in Welding, machining, tool and die, and press shops
	Improving the quality of the parts procured locally	Help four vendors in forming JV with Japanese partners.
Diversification through acquisition	Develop motorcycle Clutches (FCC)	Allwin engineering Industries Ltd (1981)
	Diversification. New markets	Honda Car project (1993)
	Supply chain management	Total Atlas Lubricants Pakistan (Pvt.) Ltd. (1998)
	Supply chain management	Atlas Power Products (Pvt.) Ltd. (1998)
	For tractors, trucks, buses, cars, motorcycles, wagons, jeeps, and tanks	Atlas Battery Ltd. (1966)
Gear project	Assembling and manufacturing of gears locally	Gear project

Case I: Explanations of MTL's Critical Organizational Events

Millat Tractors Limited Company (MTL) is one of the pioneers in tractor manufacturing in Pakistan. Being one of the oldest players in the industry, MTL has contributed significantly towards the development of the agriculture industry, by providing latest agriculture equipment through the import and manufacturing of new machinery and by developing local vendors through the transfer of technology. MTL has been the market leader over the last four decades and only recently (2003) slipped to the second position. The critical events in the life history of MTL presented in table 1, shows critical events, knowledge requirements and its impact on strategy. Interpretation of some of those events is presented next.

Table 1 shows that in 1973, MTL changed its alliance agreement with Massy Ferguson from distribution rights to franchising and technology transfer, under which Massy Ferguson was not only supposed to transfer technology to MTL but also had to help MTL in developing its production and production related capabilities. Furthermore around that time, the changes in the management philosophy and the change in the government policy on the local production of parts are often quoted in the company's reports and by the respondents interviewed during the data collection phases, to be the main reasons for the change in the alliance agreement.

This shift is widely remarked as one of the critical points in the history of the company. It was only after this change that the company started thinking to develop assembling capabilities by bringing in machines and equipment required and by arranging training courses for the employees in order to develop certain levels of skills. Later on, the same concept was behind the company's decision to move on from assembling operations to local manufacturing operations. At that time, heavy investments were made in machinery and equipment and in the development of the skill levels of the workers. According to many

respondents, "MTL is successful because of the change in the management philosophy in 1973 and whatever MTL has achieved over the years is because of the changes introduced at that time, most importantly changing alliance agreement with Massy Ferguson.

Nationalization was another events quoted by many respondents as critical. Nationalisation of MTL took place in 1973 when MTL, along with 23 other companies, was nationalised under the government's economic reform programme. Nationalisation resulted in both positive and negative consequences for the company. The company's name was changed from RTEL (Rana Tractors and Equipment Limited) to 'Millat' (Urdu word meaning the Nation) and the company lost its autonomy as it became a part of PTC (Pakistan Tractors Corporation) and was monitored by PACO (Pakistan Automobiles Corporation) and the Ministry of Industries. On the positive side, MTL being the leading tractor assembling company at that time, was given a leadership role with responsibility to develop as many parts as possible locally by itself and through other companies under PTC. All the drawings, standards, specifications, and other technological information from alliance partners were flowing directly to MTL and then MTL was passing them on to other companies under the consortium. This helped MTL in developing its manufacturing capabilities and the skill levels of the employees. Although, according to secondary sources, the nationalisation period was a bad time for the company, analysis of the sales and overall organization development shows that MTL developed considerably during this period.

The period of progressive manufacturing, which started from the 1980s when, for the first time, the government introduced a comprehensive deletion plan in which existing automotive assemblers and manufacturers were given certain deletion targets to be achieved within a stipulated time, is considered another critical event at MTL. MTL respondents consider this period as a critical point in its development because, as mentioned earlier, under the nationalisation period MTL was given the responsibility to help the local vendor industry to develop, after getting technology and technological related information from alliance partners. It was during this period that MTL not only managed to develop most of the local vendor industry, but also made massive investments regarding in-house manufacturing of the parts. MTL in its own capacity surpassed any target set by the government. But this programme was considered critically important by many respondents because of its contribution towards changing the management philosophy and by developing a quality conscious culture in the company. It was this strength, which according to many respondents steered the company away from troubles, breaks it free from the bureaucratic culture, and set in on the path to become the market leader.

The establishment of the Machining Division was quoted by many respondents as another turning point for the company. The Machining Division was established in 1984, by bringing in machining equipment from Massy Ferguson. Initially one machining line was established and, with its establishment, MTL started performing machining operations in-house on locally produced parts. Before that, locally developed parts were sent to Massy Ferguson for machining purposes. Later on in 1994, three more machining lines were added with the plans to provide machining facilities not only for the in-house produced parts but also for the parts produced by the vendors. The company is currently also providing machining facilities to other automotive parts manufacturers.

A review of some of the critical events mentioned in Table 1 shows that these events can be related to MTL's knowledge strategy. It is evident from the Table 1 that in some cases, company formed new alliances to acquire new knowledge to develop new capabilities and competencies whereas in other cases company shared this knowledge with local companies so that they can develop as well.

Case II: Explanations of AHL's Critical Organizational Events

Atlas Honda Limited (AHL) currently the market leader in the motorcycle industry of Pakistan enjoys more than 65% share of the market and has a very good reputation for quality products. A study of AHL's critical organizational events shows that although AHL has had technical assistance and a technology transfer agreement with HMCJ (Honda Motor Corporation Japan) since 1973, a change of this arrangement into the formation of a joint venture was considered a critical event in the history of the company. Before the formation of the joint venture, the company was struggling with the local development of parts due to the lack of expertises. According to one of the executives of the company, "after the joint venture, the Japanese have shown more interest in our business as it has become their responsibility as well. It is in their benefit to support us as they have bought part of the company".

It was reported by many respondents that it was after the formation of the joint venture that the Japanese have stationed at least two representatives at the AHL plant and have one director on the board. Respondents believed that this has changed the company in every sense. More training courses were arranged specially on 'Ayla Mayar', which means better quality and is synonymous of continuous improvement concept of Kaizen.

Exports and export agreement with HMCJ is considered another critical organizational events by many respondents. The company started exporting in 1989 when a batch of motorcycles was exported to Nepal under the government's agreement i.e. motorcycles were sold on behalf of the government. The export of motorcycles, from AHL's point of view, indicated at least symbolically, the production and management expertise of the company. The company management believed that they had achieved the quality standards of that of their partners and their product was good enough to be exported. However, AHL was not allowed to export to any country according to their agreement with HMCJ. However, in 1995 HMCJ revised the agreement and officially allowed AHL to export motorcycles to Bangladesh, Sri Lanka, and Nepal in their own capacity.

The merger between Panjdarya Ltd and Atlas Autos Ltd has been quoted in secondary sources and by many respondents to be another major event in the history of the company. These two companies merge in 1990. Besides bringing together two companies, the merger is also considered to brought product and operational efficiencies.

Adopting new management system is also recognized to be another critical event in AHL's life. The management of the Group in mid-1982 adopted the CEO's system under which the individual units were given a certain degree of autonomy. Each public limited company was placed under a separate CEO and all the five private limited companies were grouped together and placed under a single CEO. It was also decided that all the public limited companies individually, and private limited companies collectively, would have their own management committees. These committees consisted of heads of Production, Marketing, Finance and Personnel departments. However, if necessary, people from other areas like Quality Control and Supplies, can also be invited to participate in these committees. The management committees meet weekly to assist the CEOs in decision-making.

The development of production capabilities over time has been pointed out to be another critical event in the history of the company. Plant production capacity has been extended three times in the company's history making it the company with the largest production capability in the country. The development of workers and company production systems have been achieved with the help of alliance partners. HMCJ agreed to provide technical know-how and send its engineers frequently to impart on the job training to our engineers, foremen and workers. In this regard, a permanent M/C Technical Training Centre was set up in Lahore in 1987.

The plant capacity was expanded in 1976 followed by another expansion in 1981. Followed by this expansion, further expansion in teams for in-house development and production as well as sub-contractor development and quality assurance took place in 1982. Another expansion and modernisation of the head office facilities was completed in 1984 with the installation of a larger computer hardware system, strengthening and reorganizing the production department, and upgrading to a full department the Maintenance section.

In the late 1970s, the Group decided to follow a 'Growth through Acquisition' strategy with the setting up of the Shirazi Trading Co. Ltd (STC), which is also quoted by many respondents as another critical organizational event. STC was conceived as an import-export house and as a representative of foreign manufacturers in Pakistan, and it acquired three diverse companies in difficulties. In 1979, R.R. Industries (Pvt) Limited was acquired along with its 100 employees. This company, located in Karachi, was started with a start-up capital of PRs 0.690 million and traded in office equipment. The company had a wide network of service facilities in all major cities in Pakistan. R.R. Industries was running at a loss at the time of its acquisition.

The above-discussed events are presented in Table 2. On the basis of the analysis of the critical events of the both case study companies, results drawn on the spillovers of the knowledge acquired by these companies from their alliance partners and the evidences of a shift in their knowledge strategy over time is discussed in detail next.

Critical events and emergent knowledge strategy

It was noted during the retrospective analysis of the critical events of the case study companies discussed above, that these events were either a result of the organizations' efforts to meet existing organizational knowledge requirements or they led to the identification of the future knowledge requirements. These observations were supported by the pilot study results. The analysis conducted at this stage shows that, while explaining the significance of critical events, respondents often referred to transfer, acquisition and internalisation of knowledge, in most cases from alliance partners. These observations were further supported by the analysis of the interviews conducted during the phase II and III of this research. The analysis shows that the case study companies over the course of their development identified and filled a number of organizational knowledge gaps by adopting different strategies, which were part of the companies' knowledge strategy. These results

indicate that the knowledge strategy and the consequent actions undertaken to meet knowledge requirements are critical for the survival and growth of the companies.

The analysis of critical events shows that each event either leads to the identification/creation of new knowledge requirements, or is the result of the companies' efforts to fill the existing/prior knowledge needs. For example, the nationalisation of MTL created numerous knowledge requirements for MTL, as MTL was given the responsibility to develop the tractor and the ancillary industry. On the other hand, MTL formed many alliances, especially from 1995 onwards, when it decided to diversify in order to exploit organizational capabilities developed in the past. Mainly, these capabilities were developed by identifying and filling technology and skills-related knowledge needs over the years. Similarly, in the case of AHL, the government's deletion policy of 1980 led to new knowledge requirements and, consequently, AHL had to invest in developing and expanding production capabilities to meet those requirements. A recent example of such investments was the establishment of the gear manufacturing section and the crankshaft section. On the other hand, existing production, technological, and managerial capabilities encouraged the company to adopt an acquisition strategy.

Furthermore, from these tables (Table 1 & 2) we can see that after meeting a particular knowledge need, the two companies identified new gaps or new opportunities. For example, in the case of MTL, the establishment of the engine division was targeted to bring in new technology but was also in response to the company's effort to increase the deletion rate. The outcome of establishing this department was more than just bringing in new technology and achieving deletion levels as it also built organizational capabilities.

It is evident from the tables that with the passage of time both companies have not only managed to identify new knowledge requirements but have also filled their existing and prior needs. For example, in 1964 MTL, acting as a distributor of the product, identified the assembling and manufacturing capabilities needed for the further growth and development of the company in the long-run. In order to acquire knowledge related to developing those capabilities and competencies, MTL renewed its existing alliance agreement to include details like bringing in assembling and manufacturing capabilities. Due to this change in the alliance agreement, MTL started importing units in SKD (semi-knock down) condition and started assembling them at its own premises, instead of importing and selling them in CBU (completely build-up units) condition. Once MTL managed to develop the assembling capabilities, it again changed its alliance agreement with Massy Ferguson to include

manufacturing know-how to be transferred, as a consequence of yet another 'identification' of new knowledge requirement.

Alliance strategy and knowledge requirements

It is also clear from tables 1 and 2 that companies meet their knowledge needs by adopting different strategies and by going through different processes. The analysis of the data shows that companies change their alliance agreements due to their learning from existing or previous alliances i.e. on the basis of the improvements in their knowledge repositories. Two types of change in alliance formation pattern have been observed. First, when a company keeps the same partner but changes the alliance agreement to add new terms or remove old terms and, secondly, when a company forms a new alliance to meet new knowledge requirements, in which case often the type of knowledge required form the bases of the alliance agreement. Both MTL and AHL have changed their alliance agreements with their main alliance partners on a number of occasions.

Changes in the alliance agreement or the formation of new alliances was the result of the companies efforts to meet their knowledge requirements and in that process the companies acquired new capabilities. For example, in the case of MTL, the company acquired assembling capabilities when it changed its alliance from 'distribution rights' to 'franchising and technology transfer'. Similarly, in the case of AHL, when the company changed its technology transfer alliance into a joint venture agreement, it invested heavily in capital-intensive projects like gear manufacturing and crankshaft manufacturing and in that process it acquired the latest machinery, technical know-how and new capabilities to produce these parts in-house.

Looking back at the development of both companies over time, it can be said that manifest in the companies' development is a cyclic process which starts with the companies' learning from alliances (acquisition of new knowledge), developing capabilities through the internalisation of newly acquired knowledge, identifying new knowledge needed for the further development and growth of the company based on the changes in existing knowledge repositories, and ending in either changing or forming new alliances to acquire new knowledge. The analysis shows that if a firm's current alliance agreement facilitates in meeting the knowledge requirements it will stick to that alliance, otherwise, it will change its alliance agreement to enable itself to acquire new knowledge. Just like in the case of MTL, when MTL decided to introduce a low capacity tractor 30-hp, it formed a new alliance with

Maschio of Italy, as its focal partner was not producing such tractors i.e. the partner lacked that specific knowledge. Hence, a clear understanding of what is required from an alliance and what it is included in the alliance agreement is critical for the success of the alliance. While trust, mutual understanding, and open communication are quoted by many respondents as the main reasons for alliance success, a well formed alliance agreement seems to be the base for all these processes.

The findings of this study also show that the strategies to fill the knowledge gaps can be broadly divided into three types: the formation of alliances, the purchase/acquisition of the required knowledge, and innovation and knowledge creation. While the formation of alliances and the purchase of knowledge from external sources, innovation and knowledge creation are internal activities and each of them leads to the meeting organizational requirements.

An organization's strategy to fill knowledge requirements through alliances, in turn, include the formation of alliances, the changing of existing alliances, the formation of new alliances with partners introduced by the focal alliance, and the formation of new alliances with firms not introduced by the focal alliance. It was noted that usually, the selection of a particular strategy depends on the nature and type of the required knowledge and cost, availability, and willingness of a particular alliance partner to transfer that knowledge. The analysis of the data shows that companies often use the strategy of forming alliances when they cannot purchase the required knowledge or when a company lacks the abilities to produce such knowledge internally.

Besides forming alliances, companies also use the strategy of purchasing knowledge from external sources to fill their knowledge requirements. The analysis shows that companies use this strategy mainly to fill physical capital related knowledge requirements or the explicit and codified part of other knowledge types, which can be bought by paying a specific price. The third strategy used by the companies to fill their knowledge requirements is that of developing or producing the required knowledge internally through innovation and knowledge creation activities. It has been observed that companies often use this strategy when they have developed their capabilities and knowledge repositories to such a level where they can manage to develop knowledge internally. Furthermore, it was also noted that alliance partners also collaborate in the innovation or knowledge creation activities, an indication of the development of the relationships to a new level.

By focusing on a company's strategy to fill the knowledge requirements, through the acquisition of knowledge from alliance partners, it was also observed that different types of knowledge requirements were met by different alliance partners. For example, the focal alliance partner helped in acquiring knowledge relevant to the core business of the firm i.e. machinery, equipment, tools, layouts, drawings, specifications, know-how, operation, quality control, wastage controls etc over the time. On the other hand, the knowledge acquired from alliance partners introduced by the focal partner was complementary to the existing knowledge of the firm. So the new partners helped in building the knowledge base relevant to the core business operations of the company. Knowledge acquired through these alliances were complex in nature, though complementary but not in the area of specialisation of the main partner. Complexity is here understood in the sense of technological complexity and skills complexity. Companies' learning from these types of alliances acted as a benchmark for the formation of new alliances with partners identified by the companies themselves. This is because in such circumstances companies are already in a stable condition, with a relatively high absorptive capacity and experience at negotiating and managing the alliances.

Contrary to alliances with partners introduced by the main partner, alliances formed by a company on its own helped them in acquiring knowledge that was not complementary in nature. Usually, the acquisition of this type of knowledge helped companies in their diversification strategy. Again, as in case of alliances with new partners introduced by focal partner, these types of alliances are aimed to acquire complex but non-complementary knowledge. Companies' existing absorptive capacity also plays an important role in it. Companies use this strategy of looking for new alliance partners in a diversified area mostly when they want to exploit their learning from the focal and existing complementary alliance partners. Through these new alliances, companies also explore new knowledge avenues and, at the same time, they exploit the existing knowledge capabilities.

Alliances, knowledge and strategic intent

The strategic actions of the companies to meet their knowledge requirements through the selection of a particular knowledge acquisition strategy can also be employed to understand a company's strategic intent at the time of adaptation of a particular strategy. Using March's (1991) categories of firms' strategic intents, that is, exploitation and exploration of organizational knowledge, we also looked into the case study companies' strategic intent at the time of formation of a particular alliance in Table 3, below.

TABLE 3. Strategies to meet knowledge requirements and strategic usage of learning

KNOWLEDGE REQUIREMENTS	REQUIREMENST MEET BY	STRATEGIC USAGE OF KNOWLEDGE
Bringing in assembling and manufacturing capabilities	Changing the existing distribution rights agreement to start assembling	Exploration and acquisition of alliance partners capabilities
Machinery and equipment and basic skills	Layout, machinery and equipment provided by MF	
Moving away from assembling to manufacturing and achieving certain minimum deletion targets. To start bring in technology and technical know-how	Changed alliance agreement with MF from distribution to licensing and technology transfer. MF provided required machinery and trained the top level staff	Exploration and acquisition of alliance partners capabilities
Company started developing sheet metals, batteries and tyres		Exploration and acquisition of alliance partners capabilities
To achieve a certain percentage of deletion every year	MF speed up the technology transfer to company; yet another change in agreement details	
To achieve government set target	Staff visited MF for detailed training courses	
To start machining facilities in-house	MF provided all the equipment required and provide training to the staff	
Identified new markets/opportunities gap	Maschio provide brand name and transfer drawings and standards	Exploration and acquisition of new capabilities along with exploitation of existing capabilities
Growth in market coverage	MF provided layout, machinery and equipment	
Identified new market/opportunities gap	Perkins changed agreement details to accommodate new developments	Exploitation of main partner's capabilities
Identified new market/opportunities gap	Formed new alliances	Exploitation of main partner's capabilities
Identified new market/opportunities gap		Exploitation of main partner's capabilities
To assemble and manufacture fork-lifts in-house	Formed technology transfer alliances (TTA) with Beijing Forklifts company, China	Exploration and acquisition of new capabilities along with exploitation of existing capabilities
To assemble and manufacture low power capacity tractor	Formed TTA with ShangDong Tractors, China	Exploration and acquisition of new capabilities along with exploitation of existing capabilities
To solve casting quality control problems	Acquisition of Bolan Casting	
Identified market opportunities		Exploitation of main partner's capabilities
To produce quality Generators in company	TTA with Somers Company of France	Exploration and acquisition of new capabilities along with exploitation of existing capabilities
Identified market opportunities	Formed TTA with JAKAB, Australia	Exploration and acquisition of new capabilities along with exploitation of existing capabilities
Identified market opportunities	Formed TTA with Ssang Yong Motor Corporation Korea	Exploration and acquisition of new capabilities along with exploitation of existing capabilities

It is clear from Table 3 that the case study companies, because of their explorative strategic intent form an alliance with their main partners and developed capabilities. When companies managed to develop their capabilities to the extent where they could capitalise on these capabilities, their strategic intent changed and they started exploiting their capabilities. In the case of MTL, for example, when the company formed an alliance with Perkins Engines it was at a position where it had fully acquired assembling capabilities from Massy Ferguson and had also acquired some manufacturing capabilities along with sufficient skills required for the assembly and manufacturing of engines. Using the capabilities developed through their learning from Massy Ferguson, MTL negotiated a new alliance, with different terms and conditions with Perkins. Similarly in 1994 when MTL adopted a diversification strategy, it formed a number of alliances with new partners. According to the General Manager Projects, the main reason for MTL's diversification strategy was that the management felt that MTL has developed capabilities which were non-existent in local industry at that time. He added that the company's management felt that they could enter into diversified markets such as generating sets, forklifts trucks, etc. on the bases of these existing capabilities.

Besides forming alliances, the case study companies also seem to have adopted the strategy of acquisition of other companies in order to fill their knowledge gaps. Both case study companies adopted an acquisition strategy. However, AHL has adopted this strategy more aggressively then MTL. The analysis of the data shows that the main difference behind their acquisition strategies was the company's ownership style. While MTL underwent tremendous periods of turbulence, AHL was headed professionally by the Chairman who had vast industrial experience and had strong links with the government. Having full faith in his own management and leadership capabilities, he always believed in acquiring companies, especially 'sick industrial units', and turning them into profit making concerns. An historical look at the development of the Atlas Group shows that the company adopted this strategy from the beginning i.e. in 1966 Atlas Battery Ltd was acquired.

Discussion

On the basis of the findings of this paper it can be concluded that the change in alliance formation pattern over time and the emergence and evolution of knowledge strategy can be explained on the basis of the analysis of the critical organizational events in the life history of the two companies. This study showed that knowledge, as identified in the literature,

plays a critical role in the development and growth of the firms and is an integral part of company's strategy. This supports Zacks' (1999) assertion that companies should, instead of forming a simple strategy, develop a 'knowledge strategy' on the basis of K-SWOT (knowledge SWOT analysis). It was noted that not only knowledge played a pivotal role in companies strategy formation processes but also that companies' knowledge strategy changed over time. Furthermore, it was noted that by identifying the type of the knowledge required to achieve competitive advantage through the development of capabilities and competencies, the companies' knowledge strategy also changed in respect to the exploration or exploitation of knowledge. Companies at different phases of their development were found to adopt different knowledge exploration and exploitation strategies. This was also supported by the observation that while companies did focus on identifying existing organizational knowledge capabilities, also attempted to make the best use of that knowledge by selecting an appropriate knowledge strategy; that is, either they used existing knowledge to form new, more complex alliances or they formed alliances with locals companies in order to share knowledge with them. This not only shows the emphasis on 'knowing-doing gap' (Pfeffer and Sutton, 2002) but also how knowledge moves from international partners to local companies.

The findings of this study also show that knowledge strategy is linked with alliance formation patterns. It is clear from the analysis of the data that alliance formation was the most frequently adopted strategy in order to meet knowledge requirements, highlighting the significance of the alliance formation option for the two companies. Companies were found to form alliances to acquire knowledge lacking in the company and to transfer knowledge to local companies once that knowledge was acquired. In that regard, it was observed that alliances were revised in the case of alliances with focal partners and, furthermore, new alliances were formed with new partners in order to effectively meet the targets set in knowledge strategy. The selection of a particular alliance partner was done on the basis of their suitability, in relation to the knowledge needed by the case study companies and knowledge possessed and the willingness of the alliance partner to transfer that knowledge. Because of this, it was noted that the case study companies formed many different alliances with many different partners. The study also shows that companies form alliances with international partners to acquire new knowledge or form alliances with local companies to transfer knowledge because of certain government policies and local industry situation. They were found not to meet only government targets but also to have a continuous supply of good quality products from local industry. In other words, it can be said that government policies and local knowledge base can change company's knowledge strategy over time.

In a nutshell, it can be said that the findings of this study attempt to establish a link between alliance formation, spillovers of the knowledge acquired through alliances, organizational knowledge strategy, and critical organizational events by arguing that companies adopted a certain patterns of alliance formation on the basis of their changing knowledge strategy. The continuation of alliance agreements or formation of new alliance agreements seems to depend on knowledge requirements and fulfilling those requirements. In this regard, the use of retrospective processual analysis has also proved a complementary methodology as it helped us in explaining critical organizational events over time and to study the relation of those events with knowledge strategy.

Appendix 1.

Number of units sold, sales and major critical events: MTL (1980-200

Inauguration of Machining

Deletion Policy

Inauguration of Engine Assembly

Licensing and technology transfer agreement with

Privatisation

Launching Diversification program

Perkins Agreement revised

Licensing agreement with Shang Dong tractors and Beijing Forklifts

Commercial production for Generating sets started

Alliance agreement with Lorry-Somes for

Alliance agreement with JAKAB for design of specialist vehicles

Sales in Rupees

Joint venture with SsangYong Motor Corporation for 4 wheels

Number of units sold

Source: Based on data collected from Economic Survey of Pakistan, 2002

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Appendix 2.

Sales in Rupees and major critical events in the history of AHL
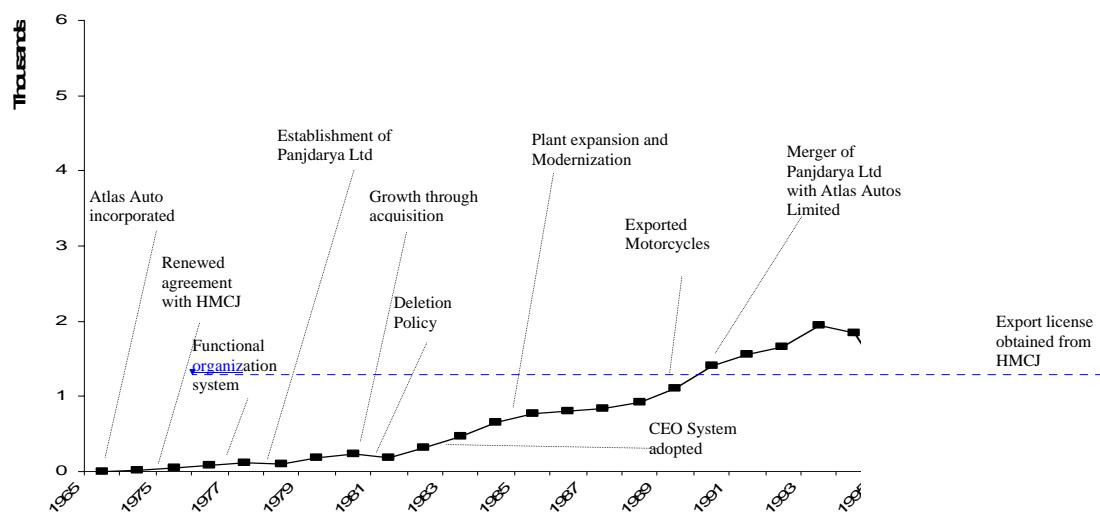
Source: Atlas Honda Annual Report, 2002

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Growing Local Roots

Competitive Session

INTERNATIONAL ALLIANCES, CRITICAL ORGANIZATIONAL EVENTS AND EMERGENT KNOWLEDGE STRATEGY

ABSTRACT

Prior studies on alliances formation patterns have looked at knowledge from different perspectives such as types, nature, transfer, stickiness, etc., however, a critical review of the literature shows that our understanding of the spillovers of knowledge acquired through alliances and particularly the impact of knowledge acquisition on strategy is limited. This empirical paper looks into those issues by identifying and explaining the critical organizational events of the case study companies. The focus of this paper is on establishing a link between organizational knowledge strategy, critical organizational events, and the pattern of alliance formation. The methodology adopted is based on case based retrospective processual approach. In total 97 in-depth interviews were carried out. The findings of this study show that organizational critical events were either a result of knowledge lacking in organizations or exploitation of existing knowledge. In both cases alliance partners were found to play a pivotal role. Furthermore, it was found that knowledge strategy not only changes due to companies' internal knowledge requirements but also due to external factors such as governmental policies and industrial trends which leads to a need for new knowledge.

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CRITICAL ORGANIZATIONAL EVENTS AND EMERGENT KNOWLEDGE STRATEGY

INTRODUCTION

Knowledge in strategic management, international business and organizational development literatures has been recognized to play a critical role in the development and growth of firms. The prior studies in this area have established this argument by contending that organizational knowledge leads to attain sustainable competitive advantage (Argote & Ingram, 2000; Eisenhardt & Martin, 2000; Gulati et al., 2000). Besides that a number of studies have looked into the nature and the type of knowledge and knowledge transfer processes (Nonaka, 1996). However, a critical review of the knowledge-based literature shows that our understanding of the spillovers of organizational knowledge, impact of knowledge on corporate strategy and how knowledge strategy (Pfeffer & Sutton, 2000; Zack, 1999) evolves in organizations over time is limited. This paper attempts to explain these issues in detail by identifying and explaining the critical organizational events of the two case study companies. Using the knowledge-based approach it is argued in this paper that organizational strategic orientation is a result of organizational knowledge strategy.

To investigate the changes taking place in the organizational knowledge strategy over time and to study the spillovers of these changes the methodology adopted is based on the retrospective processual approach using case studies. The basic tenet of the processual research is to unfold the events over time (Pettigrew, 1997) which suites the objectives of this paper. The data for the last 40 years on the development and growth of the two case study companies were collected using both primary and secondary resources. From secondary resources critical organizational events in the life history of the case study companies were identified. These critical events were further explored during interviews and in total 97 in-depth semi-structured interviews were carried out in two Pakistani automotive companies.

The findings of this study show that the critical events in the life history of the case study companies were either a result of knowledge lacking in organizations, which was identified to be critically important for survival and growth of the company or exploitation of existing knowledge. Unfolding of these events also shows that these events lead to companies capitalizing on their knowledge-based competencies and capabilities. On adopting knowledge exploration or exploitation strategy (March, 1991) it was found that critical events were either the result of change in the knowledge strategy in past or leads to adaptation of different knowledge strategy for the future. In a nutshell, it was found that organizational knowledge strategy not only changes due to companies' internal knowledge requirements which were assessed through strategy formation but also due to external factors such as governmental policies and industrial trends which leads to need for acquisition of new knowledge.

THEORETICAL BACKGROUND

Theoretically, this paper is based rooted in international business, knowledge management and organizational development disciplines. A review of the international business literature shows that the research on inter-firm alliances has received growing attention during the last two decades, reflecting the importance of alliances. Koza and Lewin (1998) have argued that the research on alliances has become something of an industry, challenging the traditional centrality of the firm as a focus for research. A review of literature on alliances shows that prior research on alliances includes the studies of alliances' alternative governance mechanisms (Balakrishnan and Koza, 1993; Buckley and Casson, 1988; Kogut, 1988); the antecedents, structures, and functions of alliances in international contexts (Beamish, 1985; Contractor and Lorange, 1988; Reuer and Miller, 1997); incentive issues, such as contracting, opportunism, and trust (Gulati, 1995a; Parkhe, 1993); alliance success, failure, and stability (Doz, 1996; Parkhe, 1993); guidelines for the better management of alliances (Doz, 1996; Harrigan, 1985 and 1988; Killing, 1982), and inter-

organizational relationships and networks (DiMaggio and Powell, 1983; Fombrun and Astley, 1983; Oliver, 1990; Gulati, 1995b). However, another stream of researchers has looked at alliances from inter-firm knowledge transfer and organizational learning perspectives (Badaracco, 1991;

Gulati, 1998; Inkpen, 1998; Zajac, 1998). This growing body of literature argues that the primary objective for establishing alliances is to acquire knowledge, skills, expertise from alliance partners to enhance organizational capabilities and competencies (Hamel, 1991; Inkpen, 2000; Kogut, 1989; Mowery et al., 1996). Some researchers have also argued that an important explanatory factor for developing organizational capabilities and competencies and the growth of alliance formation trend is that alliances provide an excellent platform for

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organizational learning through gaining access to partners knowledge. They argue that unlike other learning contexts, the formation of an alliance reduces the risk that the knowledge will dissipate quickly (Powell, 1987). However, despite the substantial number of studies on alliances, there is little explanation of the spillovers of the knowledge acquired through alliances at the firm level.

A limited number of studies have recently put forward a processual approach to study these aspects of alliances. For example, some authors have attempted to uncover some of the key stages that unfold in alliances (Doz, 1996; Gulati, 1998; Ring and Van de Ven, 1994) whereas others have studied firms' behaviour at different stages of the inter-firm alliance process (Gulati, 1998; Hutt et al., 2000). Such processual and staged approaches have been elaborated by Doz (1996), in which he has suggested a dynamic longitudinal approach which looks at the evolution of relationships. This research attempts to further explore the spillovers of knowledge acquired through alliances by developing an understanding of the changes taking place in the processes of knowledge acquisition and how newly acquired knowledge transform

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organizations over time. Authors like Kogut and Zander (1998) and Zajac (1998) have also recognised this gap in the literature on alliances and have called for more studies exploring these issues. This study intends to explore such issues empirically.

Knowledge, on the other hand, in strategic management, international business and organizational development literatures has been recognized to play a critical role in the development and growth of firms. Consequently, knowledge in organizations has been studied from many different theoretical and practical perspectives. For example, scholars have look at the different aspects of knowledge such as types, nature and movement of knowledge within and between organizations (Blackler, 1995; Nonaka and Takeuchi, 1995; Spender, 1996; Tsoukas, 1999). Moreover,

knowledge has also been discussed in detail in relation to different processes, which companies go through to acquire, transfer, and create knowledge with the help of alliance partners to achieve sustainable competitive advantage (Baum & Ingram, 1998; Cohen & Levinthal, 1990; Epple et al. 1996; Mowery et al., 1996; Nonaka & Takeuchi, 1995; Simonin, 1999; Spender, 1996; Zaheer et al., 1998). However, despite a tremendous increase in number of studies on knowledge, the impact of knowledge acquisition or knowledge transfer over time on corporate strategy has not been explored extensively in the literature. Some initial attempts in this areas include the work of Sutton and Pfeffor (1996) in which they introduced the concept of 'knowing-doing gap' and the work of Zack (1998) in which he discussed the need and significance of organization-wide knowledge strategy.

Sutton and Pfeffer (1996) argued that firms should not only attempt to identify the knowledge possesses by its employees but should also devise a strategy to apply that knowledge to practice. They argued that often firms fail to capitalize on the knowledge possessed by its members. On the other hand, Zack (1998), acknowledging the importance of knowledge for the survival and the growth of the firms, suggests that knowledge should be treated as an integral part of the firm's strategy. In this regard he talks about the concept of a 'knowledge strategy'.

In this paper, we have used the concept of 'knowledge strategy' to study the spillovers of the knowledge acquired through alliances. We argue that firm's knowledge strategy, which is often developed on the basis of firm's SWOT analysis, leads to the identification of the nature and the types of knowledge which company would like to either share with other companies by forming alliances (adopting knowledge exploitation strategy) or would like to acquire knowledge from alliance partners (adopting knowledge exploration strategy). In both cases, companies would either extend their existing alliance or form new alliances. In case of knowledge exploitation strategy, companies share knowledge acquired through international alliances with local companies and this practice leads to the development of new capabilities and competencies at local firms level. Whereas, in the case of knowledge exploration strategy, companies understandably form international alliances so that new knowledge from international alliance partners can be acquired and internalised to develop their own capabilities and competencies.

We studied above aspects of knowledge spillovers by analysing critical organizational events in the life history of the two case study companies. We assumed that if knowledge plays a critical role in organizations and if organizations form and implement a knowledge strategy then these aspects should also be highlighted in the analysis of the organizations' critical events. In other words, the explanation of those events should provide support for the questions raised in this paper. Before moving to discuss the findings of this study we briefly review the methodology adopted in this paper.

METHODOLOGY

In this paper we have adopted a retrospective processual approach to investigate the changes in organizational knowledge requirements and its impact on the knowledge strategy using case studies. We believed that, while most of the prior studies on the related topic looked at some of these aspects at any given time and have focused on initial conditions and outcomes of alliance, a historical view on these aspects (over time) and a detailed study of underlying processes would be more suitable to explore issues identified in the previous section. The focus of the retrospective processual analysis is on explaining processes of change and the interpretation of historical events. According to Pettigrew (1997) time and history are at the centre of any process analysis and the basic tenet of any processual research is to unfold events over time. As mentioned earlier, besides time and history, another element of the retrospect processual analysis is 'process'. Pettigrew (1997) defined process as a sequence of individual and collective events, actions, and activities unfolding over time in context. Although the focus of any processual analysis is on time and history, it does not stop by just reporting events in time. Rather the aim of a processual analyst is to describe, conceptualise, analyse, measures, and explain the events or issues over time in the shape of a case study, not of a case history.

It has been acknowledged that there is not a set format on conducting processual research as the field of processual research is still emerging and its boundaries are debatable (Orton, 1997). In this study, we conducted 97 in-depth semi-structured interviews in two Pakistani companies

operating in the automotive industrial sector. Interviews were carried out in three different languages and the respondents were purposefully selected from the different organizational positions and different hierarchical levels. The respondents were asked to reflect upon the critical events which took place in the company over time. These critical events were identified from the analysis of the secondary data for the last fifty years and were also reported by the top management during the first phase of interviews. In the second phase of data collection particular attention was paid towards unfolding the events over time. Analysis of the critical organizational events in relation to the adaptation of a particular knowledge strategy and spillovers of that is presented in the analysis part.

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either jumped or fall tremendously

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identified based on those events

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the Critical Organizational Events: MTL

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TABLE 1

MTL: Critical events, knowledge requirements and strategies adopted

CRITICAL EVENTS	KNOWLEDGE REQUIREMENTS	STRATEGIES TO MEET KNOWLEDGE REQUIREMENTS
Assembling and Manufacturing Operations	Assembling and manufacturing capabilities gaps, equipment and skills gaps	Started importing tractors in a semi-knocked down condition from Massey Ferguson in the UK (1964)

and Nationalisation	Moving away from assembling to manufacturing and achieving deletion targets. To start bring in technology and technical know-how.	Licensing and technology transfer agreement with Massey Ferguson (UK) (1973) Licensing and technology transfer agreement with Perkins (UK) (1973)
	To assemble and manufacture low power capacity tractor	Licensing agreement with ShangDong Tractor (1992)
	Identified new markets/opportunities	Licensing and technology transfer agreement with Maschio for agricultural Implements (1989)
	To solve casting quality control problems	Buy out of Bolan Castings (1993)
	Growth in market coverage	Added a new tractor assembly plant (1989)
Establishment of Engine Assembly Plant and Kaizen Practices	To start manufacturing and assembling engines locally	Inauguration of engine assembly plant (1980)
	Identified new market/opportunities	Perkins Distributor agreement (UK) (1990)
	Identified new market/opportunities	Multi-application products launched (1990)
	Identified market opportunities	Started Commercial Production of Generating Sets (1994)
Deletion Policy	Government introduced Deletion Program (1981)	R&D department established (1981)
	To achieve government set deletion target	
	To procure better quality parts	Investment in Baluchistan Wheels (1982)
Machining Division	To start machining facilities in-house	Inauguration of Machining Division (1984)
Diversification and Privatisation	Identified new market/opportunities	Launched diversification programme (1992)
	To assemble and manufacture fork-lifts in-house	Licensing agreement with Beijing Forklift for Forklift (1992)
	To produce quality Generators in company	Licensing agreement with Leroy Somers for Alternators (France) (1995)
	Identified market opportunities	Agreement with JAKAB for design of specialist vehicles (Australia) (1996)
	Identified market opportunities	Joint venture with Ssang Yong Motor Corporation, for the luxury four-wheel drive Jeep (1998)
	To achieve high quality and maximum output	Manufacturing machinery and quality control equipment validated through the suppliers (1999)

Before we start discussing results, lets discuss some of the critical events in the life history of AHL, as presented in Table 2.

TABLE 2

AHL: Critical events, knowledge requirements and strategies adopted

CRITICAL EVENTS	KNOWLEDGE GAPS 'IDENTIFIED' OR 'IMPOSED'	STRATEGIES TO FILL THE KNOWLEDGE GAPS
Joint venture agreement with HMCJ	Manufacture Honda Motorcycles, gaps related to Shock absorber, R&D Wing and Tool Making facilities	Technical Assistance Agreement signed with Honda (1962)
	To start manufacturing and assembling locally	Renewal of Technical Agreement with Honda (1974)
	Development of technically sophisticated parts	Joint venture agreement signed with HMCL (1988)
Merger of Panjdarya Ltd. with Atlas Autos Limited	Market expansions/ new opportunities	Incorporation of Panjdarya Limited as Joint venture with Honda (1979)
	To achieve synergistic effects	Merger of Panjdarya Ltd. Into Atlas Autos Limited
Changes in management system	Facing challenges of structural re-adjustment, re-culturalisation and re-organization of the company	Change in Management System (1980)

Development of production capabilities	Developing facilities in-house	Investment of PRs. 210 Million to manufacture Crankshaft in-house
	Technical know-how for engineers, foremen and workers	Set up a technical training centre at Lahore
Export and export agreement	Market opportunities	Export of build up motorcycles to Nepal (1989)
	Market opportunities	Export agreement signed with HMCL (1995)
	Company has been striving to implement govt. policy	Investment at Panjdarya in Welding, machining, tool and die, and press shops
	Improving the quality of the parts procured locally	Help four vendors in forming JV with Japanese partners.
Diversification through acquisition	Develop motorcycle Clutches (FCC)	Allwin engineering Industries Ltd (1981)
	Diversification. New markets	Honda Car project (1993)
	Supply chain management	Total Atlas Lubricants Pakistan (Pvt.) Ltd. (1998)
	Supply chain management	Atlas Power Products (Pvt.) Ltd. (1998)
	For tractors, trucks, buses, cars, motorcycles, wagons, jeeps, and tanks	Atlas Battery Ltd. (1966)

Gear project	Assembling and manufacturing of gears locally	Gear project

AHL is a part of the Atlas Group of Companies and over the years has played a pivotal role in the development and support of the group. AHL came into existence on January 1, 1991 with the merger of Atlas Autos Limited (AAL) and Panjdarya Limited, two sister concerns of the Atlas Group. Atlas Autos was incorporated in 1962 by forming an alliance with the Italian company LAVARDA. However, soon the company changed its alliance partner by forming a new alliance with Honda Motor Company Japan (HMCJ) and in 1963 it started the assembly and progressive manufacture of motorcycles in Karachi with the technical collaboration of HMCJ. Commercial production started in 1964 with the start of assembling operations. In 1974, the company renewed its alliance agreement with HMCJ in response to the government's policy of encouraging the local development of parts.

Atlas Honda Limited being part of the Atlas Group of Companies and especially being the leading company of the group, it is very difficult to separate AHL's critical organisational events from those of groups. According to one respondent, the establishment or acquisition of each company of the Atlas Group in itself is a critical point in the company's history. However, the development of AHL over the time is depicted in Figure 5, in which major events faced by the company are identified and located using the sales revenue figures, followed by a detailed discussion of the company's critical events.

Insert Table 1 and 2 about here

Critical organization events: AHL

The Group Executive Board was later named the Group Executive Committee and this committee was responsible to help the company management to set objectives, formulate strategies, approve budgets, and appraise performances of individual companies. Headed by the Chairman, the Board comprised five other members, four of whom were also CEOs.

It was also decided that eventually the CEOs who were holding both the CEO position as well as the full-time Group Executive Committee membership would have been asked to relinquish either of the two positions. The idea was to allow these executives to either concentrate fully on the operational matters of their companies or to focus on their responsibilities as full-time members of the Group Executive Committee.

The Group Finance Committee was set up in December 1985, the Marketing Committee in September 1986, the Production Committee in January 1987, and the Personnel and Investment Committee in October 1988. All these committees were headed by Group Directors and members of the Group Executive Committee, except the Chairman of the Finance Committee who then happened to be the Director Finance of AAL and PDL. Recently, the group has changed the management system again by adopting the HAY Management System. According to this system any employee from any company of the group can be transferred to any other company of the group without the approval of the employees. Under this system the company has hired consultants who are currently doing the job of collecting data on the number of employees of the group and their expertise areas.

Although, most of the respondents were scared due to this system, still most of them consider adopting this system as another critical point in the history of the company, as now there would be more opportunities to learn and, most importantly, at least the company manages to stick to one system.

In 1978, the Group established Panjdarya Limited near Lahore, as a private limited company with an initial capital of PRs 2 million to manufacture Honda motorcycles. In 1979, the Group established another company, called Clearing and Warehousing (Pvt) Limited Karachi (CWL). This company was started with an initial capital of PRs. 0.5 million to ensure proper storage and handling of the increased Group's imports. It rented its excess capacity to other companies.

By 1980, STC represented several important manufacturing and trading companies from USA, UK, Italy, Japan, and South Korea for products such as earth moving and construction equipment, fork lifts, trucks, hydraulic tools, and solar powered navigational equipment. STC was also the sole representative of MAN of Germany for heavy equipment. Later on, it also acquired franchise rights for Canon copiers and facsimile machines.

The year-wise major critical events of AHL and the strategic analysis of these events is presented below in Table 5.9.

Insert Table 1 and 2 about here
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3 that the case study companies, because of their explorative strategic intent form an alliance with their main partners and developed capabilities. When companies managed to develop their capabilities to the extent where they could capitalise on these capabilities, their strategic intent changed and they started exploiting their capabilities. In the case of MTL, for example, when the company formed an alliance with Perkins Engines it was at a position where it had fully acquired assembling capabilities from Massy Ferguson and had also acquired some manufacturing capabilities along with sufficient skills required for the assembly and manufacturing of engines. Using the capabilities developed through their learning from Massy Ferguson, MTL negotiated a new alliance, with different terms and conditions with Perkins. Similarly in 1994 when MTL adopted a diversification strategy, it formed a number of alliances with new partners. According to the General Manager Projects, the main reason for MTL's diversification strategy was that the management felt that MTL has developed capabilities which were non-existent in local industry at that time. He added that the company's management felt that they could enter into diversified markets such as generating sets, forklifts trucks, etc. on the bases of these existing capabilities.

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The different strategic usages of alliance learning along with the knowledge gaps filled by using the different strategies are presented in Table 6.3 below.

Insert Table 1 and 2 about here

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Besides forming alliances, the case study companies also seem to have adopted the strategy of acquisition of other companies in order to fill their knowledge gaps. Both case study companies adopted an acquisition strategy. However, AHL has adopted this strategy more aggressively then MTL. The analysis of the data shows that the main difference behind their acquisition strategies was the company's ownership style. While MTL underwent tremendous periods of turbulence, AHL was headed professionally by the Chairman who had vast industrial experience and had strong links with the government. Having full faith in his own management and leadership capabilities, he always believed in acquiring companies, especially 'sick industrial units', and turning them into profit making concerns. An historical look at the development of the Atlas Group shows that the company adopted this strategy from the very beginning i.e. in 1966 Atlas Battery Ltd was acquired (Appendix 3)

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It is also clear from table 1 and 2 that

From the above discussion, it can be concluded that c

companies fill their knowledge gaps by adopting different strategies and by going through different processes.

The different strategies used by the case study companies to fill their knowledge gaps over time are discussed below.

Similarly, it is evident from our discussion of 'formation of new alliances with or without the help of the main partner' that both case companies have formed a network of alliances to fill their knowledge gaps.

Changes in the alliance agreement or the formation of new alliances was the result of the companies efforts to fill their knowledge gaps and in that process the companies acquired new capabilities. For example, in the case of MTL, the company acquired assembling capabilities when it changed its alliance from 'distribution rights' to 'franchising and technology transfer'. Similarly, in the case of AHL, when the company changed its technology transfer alliance into a joint venture agreement, it invested heavily in capital-intensive projects like gear manufacturing and crankshaft manufacturing and in that process it acquired the latest machinery, technical know-how and new capabilities to produce these parts in-house.

Looking back at the development of the both companies over time, it can be said that manifest in the companies' development is a cyclic process which starts with the companies' learning from alliances, developing capabilities through the filling of knowledge gaps, identifying new knowledge gaps as the result of the changes in existing knowledge, and ending in either changing or forming new alliances to fill new knowledge gaps. The

analysis shows that if a firm's current alliance agreement facilitates in filling the knowledge gaps it will stick to that alliance, otherwise, it will change its alliance agreement to enable itself to acquire new knowledge. Just like in the case of MTL, when MTL decided to introduce a low capacity tractor 30-hp, it formed a new alliance with Maschio of Italy, as its focal partner was not producing such tractors i.e. the partner lacked that specific knowledge. Hence, a clear understanding of what is required from an alliance and what it is included in the alliance agreement is critical for the success of the alliance. While trust, mutual understanding, and open communication are quoted by many respondents as the main reasons for alliance success, a well formed alliance agreement seems to be the base for all these processes.

The study also shows that a firm at the embryonic stage of its development is more likely to form alliances as it lacks capabilities and skills required to survive on its own. Once the alliance is formed, it starts learning from its alliances by imitating partners' practices through of learning and knowledge transfer processes. Obviously, firms build capabilities through learning and the enhanced capabilities help them identify new knowledge required for further growth and development. This type of learning loop continues over time. Firms learn incrementally and, consequently, over time become powerful enough to survive on their own in the competitive business world.

The strategic actions of the companies to fill the knowledge gaps through the selection of a particular knowledge acquisition strategy can also be employed to understand a company's strategic intent at the time of adaptation of a particular strategy. Using March's (1991) categories of firms' strategic intents, that is, exploitation and exploration of

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organizational learning capabilities, we also looked into the case study companies' strategic intent at the time of formation of a particular alliance in Table

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nalysis of the data shows that companies change their alliance agreements due to their learning from existing or previous alliances. Two types of change, in this regard, have been observed. First, when a company keeps the same partner but changes the alliance agreement to add new things or remove old things and, secondly, when a company forms a new alliance to fill new knowledge gaps and the type of knowledge required often form the main bases of the alliance agreement.

Both MTL and AHL have changed their alliance agreements with their main alliance partners on a number of occasions.

3, below.

TABLE 3
Strategies to fill the knowledge gaps and strategic usage of learning

KNOWLEDGE GAPS	GAP FILLED BY	STRATEGIC USAGE OF LEARNING
Bringing in assembling and manufacturing capabilities	Changing the existing distribution rights agreement to start assembling	Exploration and acquisition of alliance partners capabilities
Machinery and equipment and basic skills	Layout, machinery and equipment provided by MF	
Moving away from assembling to manufacturing and achieving certain minimum deletion targets. To start bring in technology and technical know-how	Changed alliance agreement with MF from distribution to licensing and technology transfer. MF provided required machinery and trained the	Exploration and acquisition of alliance partners capabilities

	top level staff	
Company started developing sheet metals, batteries and tyres		Exploration and acquisition of alliance partners capabilities
To achieve a certain percentage of deletion every year	MF speed up the technology transfer to company; yet another change in agreement details	
To achieve government set target	Staff visited MF for detailed training courses	
To start machining facilities in-house	MF provided all the equipment required and provide training to the staff	
Identified new markets/opportunities gap	Maschio provide brand name and transfer drawings and standards	Exploration and acquisition of new capabilities along with exploitation of existing capabilities
Growth in market coverage	MF provided layout, machinery and equipment	
Identified new market/opportunities gap	Perkins changed agreement details to accommodate new	Exploitation of main partner's capabilities

	developments	
Identified new market/opportunities gap	Formed new alliances	Exploitation of main partner's capabilities
Identified new market/opportunities gap		Exploitation of main partner's capabilities
To assemble and manufacture fork-lifts in-house	Formed technology transfer alliances (TTA) with Beijing Forklifts company, China	Exploration and acquisition of new capabilities along with exploitation of existing capabilities
To assemble and manufacture low power capacity tractor	Formed TTA with ShangDong Tractors, China	Exploration and acquisition of new capabilities along with exploitation of existing capabilities
To solve casting quality control problems	Acquisition of Bolan Casting	
Identified market opportunities		Exploitation of main partner's capabilities
To produce quality Generators in company	TTA with Somers Company of France	Exploration and acquisition of new capabilities along with exploitation of existing capabilities
Identified market opportunities	Formed TTA with JAKAB, Australia	Exploration and acquisition of new capabilities along

		with exploitation of existing capabilities
Identified market opportunities	Formed TTA with Ssang Yong Motor Corporation Korea	Exploration and acquisition of new capabilities along with exploitation of existing capabilities

TABLE 3
Strategies to fill the knowledge gaps and strategic usage of learning

KNOWLEDGE GAPS	GAP FILLED BY	STRATEGIC USAGE OF LEARNING
Bringing in assembling and manufacturing capabilities	Changing the existing distribution rights agreement to start assembling	Exploration and acquisition of alliance partners capabilities
Machinery and equipment and basic skills	Layout, machinery and equipment provided by MF	
Moving away from assembling to manufacturing and achieving certain minimum deletion targets. To start bring in technology and technical	Changed alliance agreement with MF from distribution to licensing and technology transfer. MF provided required	Exploration and acquisition of alliance partners capabilities

know-how	machinery and trained the top level staff	
Company started developing sheet metals, batteries and tyres		Exploration and acquisition of alliance partners capabilities
To achieve a certain percentage of deletion every year	MF speed up the technology transfer to company; yet another change in agreement details	
To achieve government set target	Staff visited MF for detailed training courses	
To start machining facilities in-house	MF provided all the equipment required and provide training to the staff	
Identified new markets/opportunities gap	Maschio provide brand name and transfer drawings and standards	Exploration and acquisition of new capabilities along with exploitation of existing capabilities
Growth in market coverage	MF provided layout, machinery and equipment	
Identified new market/opportunities gap	Perkins changed agreement details to	Exploitation of main partner's capabilities

	accommodate new developments	
Identified new market/opportunities gap	Formed new alliances	Exploitation of main partner's capabilities
Identified new market/opportunities gap		Exploitation of main partner's capabilities
To assemble and manufacture fork-lifts in-house	Formed technology transfer alliances (TTA) with Beijing Forklifts company, China	Exploration and acquisition of new capabilities along with exploitation of existing capabilities
To assemble and manufacture low power capacity tractor	Formed TTA with ShangDong Tractors, China	Exploration and acquisition of new capabilities along with exploitation of existing capabilities
To solve casting quality control problems	Acquisition of Bolan Casting	
Identified market opportunities		Exploitation of main partner's capabilities
To produce quality Generators in company	TTA with Somers Company of France	Exploration and acquisition of new capabilities along with exploitation of existing capabilities
Identified market opportunities	Formed TTA with JAKAB,	Exploration and acquisition

	Australia	of new capabilities along with exploitation of existing capabilities
Identified market opportunities	Formed TTA with Ssang Yong Motor Corporation Korea	Exploration and acquisition of new capabilities along with exploitation of existing capabilities

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Insert Table 1 and 2 about here

DISCUSSION

y, and ending in either changing or forming new alliances to acquire new knowledge. The analysis shows that if a firm's current alliance agreement facilitates in meeting the knowledge requirements it will stick to that alliance, otherwise, it will change its alliance agreement to enable itself to acquire new knowledge. Just like in the case of MTL, when MTL decided to introduce a low capacity tractor 30-hp, it formed a new alliance

with Maschio of Italy, as its focal partner was not producing such tractors i.e. the partner lacked that specific knowledge. Hence, a clear understanding of what is required from an alliance and what it is included in the alliance agreement is critical for the success of the alliance. While trust, mutual understanding, and open communication are quoted by many respondents as the main reasons for alliance success, a well formed alliance agreement seems to be the base for all these processes.

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TABLE 5
Strategies to fill the knowledge gaps and strategic usage of learning

KNOWLEDGE GAPS	GAP FILLED BY	STRATEGIC USAGE OF LEARNING
Bringing in assembling and manufacturing capabilities	Changing the existing distribution rights agreement to start assembling	Exploration and acquisition of alliance partners capabilities
Machinery and equipment and basic skills	Layout, machinery and equipment provided by MF	
Moving away from assembling to manufacturing and achieving certain minimum deletion targets. To start bring in technology and technical know-how	Changed alliance agreement with MF from distribution to licensing and technology transfer. MF provided required machinery and trained the top level staff	Exploration and acquisition of alliance partners capabilities
Company started developing sheet metals, batteries and tyres		Exploration and acquisition of alliance partners capabilities
To achieve a certain percentage of deletion every year	MF speed up the technology transfer to company; yet another change in agreement details	
To achieve government set target	Staff visited MF for detailed training courses	
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Identified new market/opportunities gap	Perkins changed agreement details to accommodate new developments	Exploitation of main partner's capabilities
Identified new market/opportunities gap	Formed new alliances	Exploitation of main partner's capabilities
Identified new market/opportunities gap		Exploitation of main partner's capabilities
To assemble and manufacture fork-lifts in-house	Formed technology transfer alliances (TTA) with Beijing Forklifts company, China	Exploration and acquisition of new capabilities along with exploitation of existing capabilities
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Appendix 3
Development of Atlas Group over time

YEAR	COMPANY	OWNERSHIP	JV PARTNER
1962	Shirazi Investments	Set up by	

	(Pvt.) Ltd.	Chairman	
1963	Atlas Honda Ltd.	Set up by Chairman	Honda Motor Co. Ltd., Japan Showa of Japan (TAA)
1966	Atlas Battery Ltd.	Acquired	Honda Motor Co. Ltd., Japan Japan Storage Battery Co Ltd., Japan
1973	Shirazi Trading Co. (Pvt.) Ltd.	Set up by Chairman	Representative of M.A.N. of Germany for plant and equipment etc. Sole agent in Pakistan for CANON
1979	Atlas Office Equipment Ltd.	Acquired	
1980	Muslim Insurance Co. Ltd.	Acquired	Munich Re, Swiss Re, Frankona, Willis Faber.
1981	Allwin engineering Industries Ltd.	Acquired	A. E. Plc., UK, Honda Motor Co. Ltd., Art Metal Manufacturing Co. Ltd. Japan, F.C.C, Japan
1989	Atlas BOT Lease Ltd.	Joint venture	National Investment Trust and Bank of Tokyo
1990	Atlas BOT Investment Bank Ltd.	Joint venture	Bank of Tokyo and Asian Development Bank
1993	Honda Atlas Cars (Pakistan) Ltd.	Equity participation	Honda Motor Company Ltd Japan
1994	Honda Atlas Services (Pvt.) Ltd.	Equity participation	Honda Motor Company Limited Japan
1998	Atlas Power Products (Pvt.) Ltd.		

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TABLE 6
Development of Atlas Group over time

YEAR	COMPANY	OWNERSHIP	JV PARTNER
1962	Shirazi Investments (Pvt.) Ltd.	Set up by Chairman	
1963	Atlas Honda Ltd.	Set up by Chairman	Honda Motor Co. Ltd., Japan Showa of Japan (TAA)
1966	Atlas Battery Ltd.	Acquired	Honda Motor Co. Ltd., Japan Japan Storage Battery Co Ltd., Japan
1973	Shirazi Trading Co. (Pvt.) Ltd.	Set up by Chairman	Representative of M.A.N. of Germany for plant and equipment etc. Sole agent in Pakistan for CANON
1979	Atlas Office Equipment Ltd.	Acquired	
1980	Muslim Insurance Co. Ltd.	Acquired	Munich Re, Swiss Re, Frankona, Willis Faber.
1981	Allwin engineering Industries Ltd.	Acquired	A. E. Plc., UK, Honda Motor Co. Ltd., Art Metal Manufacturing Co. Ltd. Japan, F.C.C, Japan
1989	Atlas BOT Lease Ltd.	Joint venture	National Investment Trust and Bank of Tokyo
1990	Atlas BOT Investment Bank Ltd.	Joint venture	Bank of Tokyo and Asian Development Bank
1993	Honda Atlas Cars (Pakistan) Ltd.	Equity participation	Honda Motor Company Ltd Japan
1994	Honda Atlas Services (Pvt.) Ltd.	Equity participation	Honda Motor Company Limited Japan
1998	Atlas Power Products (Pvt.) Ltd.		

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Development of Atlas Group over time

YEAR	COMPANY	OWNERSHIP	JV PARTNER
1962	Shirazi Investments (Pvt.) Ltd.	Set up by Chairman	
1963	Atlas Honda Ltd.	Set up by Chairman	Honda Motor Co. Ltd., Japan Showa of Japan (TAA)
1966	Atlas Battery Ltd.	Acquired	Honda Motor Co. Ltd., Japan Japan Storage Battery Co Ltd., Japan
1973	Shirazi Trading Co. (Pvt.) Ltd.	Set up by Chairman	Representative of M.A.N. of Germany for plant and equipment etc. Sole agent in Pakistan for CANON
1979	Atlas Office Equipment Ltd.	Acquired	
1980	Muslim Insurance Co. Ltd.	Acquired	Munich Re, Swiss Re, Frankona, Willis Faber.
1981	Allwin engineering Industries Ltd.	Acquired	A. E. Plc., UK, Honda Motor Co. Ltd., Art Metal Manufacturing Co. Ltd. Japan, F.C.C, Japan
1989	Atlas BOT Lease Ltd.	Joint venture	National Investment Trust and Bank of Tokyo
1990	Atlas BOT Investment Bank Ltd.	Joint venture	Bank of Tokyo and Asian Development Bank
1993	Honda Atlas Cars (Pakistan) Ltd.	Equity participation	Honda Motor Company Ltd Japan

1994	Honda Atlas Services (Pvt.) Ltd.	Equity participation	Honda Motor Company Limited Japan
1998	Atlas Power Products (Pvt.) Ltd.		