

# A Coordination Analysis of the Creative Design Process<sup>\*</sup>

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## **Abstract**

The creative design process is often characterised by high task uncertainty and tight dependency on other functions both within a firm and with external parties. Coordination thus plays a key role in integrating different functions related to the design process in attaining a common objective of delivering products to end customers. This paper examines coordination mechanisms and their determinants in the creative design process of a fashion firm. It is argued that coordination mechanisms are driven by a set of three determinants, namely responsibility interdependence, uncertainty, and conflict. Findings from the case study are presented and areas for future research are provided.

Keywords: coordination, fashion, supply chain management, case study.

## **Introduction**

The creative design process in a fashion firm is widely known to have a high level of task uncertainty and strong dependencies upon other functions within a firm (Moxey and Studd, 2000). The difficulties inherent in product design - such as defining customer requirements and creating prospective designs - often require longer time than planned (Christopher and Peck, 1997). The long lead-times of creating and producing fashion products make them vulnerable to being outmoded because customer preferences have changed by the time the products reach the store (Fisher, 1997). Tight coordination is required to alleviate the difficulty of accomplishing the creative design process in time to suit customer

preferences. For instance, Zara, the Spanish apparel manufacturer and retailer, competes on the basis of its speed of responding to the rapidly changing tastes of young urban customers (Walker *et al.*, 2000). Tight coordination with exclusive retailers, textile suppliers, local sewing assemblers, and a distribution centre for supporting the creative design process enables Zara to create a superior lead-time of product development from sketch to store in two weeks.

Previous research in supply chain management has increasingly paid attention to the role of coordination as a means to integrate value-added processes across different actors. According to Ballou *et al.* (2000), coordination is a central lever of supply chain management. Stank *et al.* (1999) studied interfirm coordination processes characterised by effective communication, information exchange, partnering, and performance monitoring. Lee (2000) proposes supply chain coordination as a vehicle to redesign decision rights, workflow, and resources between chain members to leverage better performance such as higher profit margins, improved customer service performance, and faster response time. Recently, Simatupang *et al.* (2002) have developed a taxonomy of coordination modes that consists of information sharing, logistics synchronisation, incentive alignment, and collective learning.

This research has been conducted to complement the previous research on coordination mechanism in the creative design process. The research questions for this study are “how should related actors coordinate their interdependent processes?” and “under what circumstances do they carry out a certain coordination mechanism?”. A set of three propositions has been developed to answer those questions. It is argued that coordination mechanisms are carried out to explicitly facilitate responsibility interdependence, mitigate uncertainty, and resolve conflict. Given the exploratory nature of this study, a case study research was conducted to examine the gap between the theory and the practice of coordination in a fashion firm (Yin, 1994). Insights from the practice are presented and areas for future research are provided in this paper.

The paper is organised as follows. The next section reviews prior literature on coordination. The succeeding section presents a set of three propositions drawn from the theory. Then, the research method in conducting the study is described. After that, two sections present research findings. The discussion section identifies some weaknesses of this study and provides some directions for future research. The concluding section summarises key findings derived from data analysis.

## **Literature review**

Coordination has been generally known as a mechanism to regulate interdependent objects (e.g., the tasks, responsibility, capability, and information) of different groups that must match in both form and time into an integrated accomplishment of some common objectives (Malone and Crowston, 1994; Simatupang *et al.*, 2002; Thomson, 1967). Interdependence between groups is created because the business process of the firm is mostly divided between more than two groups. This division of labour and its interdependencies make coordination among different tasks an important issue particularly where groups are not governed by a single authority.

Study of the nature of task interdependence between different groups as a determinant of coordination was initiated by Thompson (1967). He conceptualised task interdependence as the extent to which the relationship between groups could be characterised into one of the three patterns of workflow that exist between them: pooled, sequential, and reciprocal. For each form of interdependence, Thompson identified three generic coordination mechanisms, namely standardisation or rules, plans and schedules, and mutual adjustment.

Malone and Crowston (1994) extended Thomson's work by defining coordination as managing dependencies among activities and introduced coordination theory that can be used to analyse and redesign organisation. This theory is based on an idea of conceptual separation of two types of activities that present within a process: activities that directly contribute to the output of the process and additional activities called coordination mechanisms, which must be carried out

in order to manage various interdependencies among activities and resources. Crowston (1997) applied coordination theory to redesign organisational processes. He also proposed tasks and resources exchange between actors as bases for interdependence. Furthermore, Malone *et al.* (1999) applied coordination theory to offer alternative leverages for redesigning processes in an organisation.

Van de Ven *et al.* (1976) added team interdependence to the three original interdependences of Thomson's work. They also proposed two additional determinants of coordination, namely task uncertainty and size of work unit. Task uncertainty is a more relevant construct to this current research because the scope of this study is on interfunctional coordination instead of intrafunctional coordination. Galbraith (1973) also states that participating actors need to use lateral coordination mechanisms to deal with various uncertainties in a firm.

Victor and Blackburn (1987) criticised Thompson's typology because it fails to consider differing amounts of interdependence between functions. They proposed two distinct determinants of effective coordination, namely the amount of interdependence and the amount of conflict between functions. Shapiro (1977) emphasises that various conflicts between functions can be resolved by creating a certain level of coordination.

The interdependence concept of Thomson (1967) and Malone and Crowston (1994) is limited to ongoing operations, in which the object of coordination is relatively stable. However, this concept is not applicable to time-dependent processes such as a product development project. As product development processes move to the next stage, the object of coordination will also change. Based on this concept, Adler (1995) studied coordination across design/manufacturing interfaces in product development projects that were time-constrained where the object of coordination changes over time. Bailetti *et al.* (1994) also developed a concept of coordination that takes into account time-varying interdependencies among all actors in some problem domain. They argue that the effectiveness of a coordination mechanism depends on a shared

view of coordination structure because it facilitates the visibility of the interconnections between an assignment of individual responsibilities and their interrelationships to achieve some organisational objectives.

A shared object as a basis of coordination between actors has also been used in recent research. Konijnendijk (1994) examined shared objects such as timing, volumes and mix, and product specifications to examine interdependence between marketing and manufacturing in Engineer-To-Order (ETO) companies. Bailetti *et al.* (1998) applied a coordination structure that highlights the configuration of actors and shared work object to describe concurrent responsibilities rather than more traditional task interdependencies in a sample of a design project. They identified different possibilities in responsibility interdependencies that could exist within design projects drawn from different organisations at different project key points. Similarly, Gittell (2000) proposes relational coordination that represents coordination required to manage responsibility interdependence between related actors.

Previous research has paid little attention to the examination of coordination mechanisms and their three determinants as identified in the literature above. Given the importance of coordination and the recognition of its determinants, this current research provides empirical evidence on coordination among functions that explicitly incorporates responsibility interdependence, uncertainty, and conflict. The next section presents the research propositions to be tested in a real world setting.

### **Research propositions**

A set of propositions serves as a starting point to guide data collection regarding several premises of coordination mechanisms and their determinants in a real life setting. This set of propositions is derived from the theoretical foundations of coordination mechanism as discussed in the literature review (Miles and Huberman, 1994). Dowlatshahi (2000) and Handfield *et al.* (2001) had adopted the similar process of developing and testing propositions using the case study method. This research employs a set of three propositions which represents

theoretical relationships between coordination mechanisms and their determinants that drive the need for coordination, namely responsibility interdependence (Adler, 1995; Bailetti *et al.*, 1998), uncertainty (Fisher, 1997; Van de Ven *et al.*, 1976), and conflict (Shapiro, 1977; Victor and Blackburn, 1987). The remaining part of this section discusses the three propositions.

**Proposition 1:** *A coordination mechanism is driven to explicitly facilitate responsibility interdependence.*

Proposition 1 conceptualises a coordination mechanism as a function of a shared work object among actors. Responsibility interdependence captures the level of direct contact among participating actors who have joint responsibilities to create, modify, and use a set of shared work objects (Bailetti *et al.*, 1998). Interdependence theory contends that coordination mechanisms are shaped by the amount and degree of responsibility interdependence that exist in the relationship between two or more actors (Adler, 1995; Bailetti and Callahan, 1993; McCann and Galbraith, 1981). Van de Ven *et al.* (1976) proposed four incremental levels of coordination mechanisms for interfunctional interdependence: standards, schedules and plans, mutual adjustments, and teams. These mechanisms are required from low to high interdependence. As responsibility interdependence increases, the need to create a higher level of coordination to process information also increases (Galbraith, 1973). Lower levels of responsibility interdependence indicate that actors can do the task quite independently from each other and have little need for interaction, consultation, or exchange. Greater responsibility interdependence means higher interdependence, more formal and frequent information sharing and greater cooperation to find alternative solutions to the problem encountered.

**Proposition 2:** *A coordination mechanism is driven to explicitly cope with uncertainty.*

Organisational tasks such as demand forecasting, designing, and outsourcing vary in the degree to which the means to accomplish them are certain. Several reasons for uncertainties include the difficulty of forecasting customer demands,

task variability and difficulty, long supplier lead-times, wide product variety, and short selling seasons. According to Galbraith (1973) uncertainty is the difference between the amount of information required to perform a task and the amount that is already available to the actors. The main challenge to the participating actors is to coordinate alternative levers to cope with various uncertainties such as huge variability in customer demand, task duration time variability, lead time variability, and long time-to-market for new products.

In addition to the amount of information that must be processed, the richness of the information is also important (Daft and Lengel, 1986). Media richness theory suggests that as information increases in equivocality and uncertainty, it requires richer means of coordination to share and process relevant information. Van de Ven *et al.* (1976) found that group meetings were the most effective way of dealing with a high level of task uncertainty that refers to the variability and difficulty of the work undertaken by a function. Galbraith (1973) also argues that in an organisation where attributes of a task are highly uncertain, participating actors should rely on learning that facilitates changes in role allocation, schedules, and priorities. Similarly, Fisher (1997) finds that closer coordination will be more likely to emerge under conditions of high demand uncertainty. Accordingly, the importance of being able to handle various uncertainties is likely to influence the willingness to coordinate among participating members.

**Proposition 3:** *A coordination mechanism is driven to explicitly consider conflict.*

Conflict occurs when the actions of one or more participating actors prevent them from achieving some common objectives. Conflict can manifest itself as differences between actors' objectives, vagueness of authority, disagreements in performance measures and incentives, role or responsibility ambiguity, and differences in perceptions (Shapiro, 1977; Simatupang and Sridharan, 2002). Since interfunctional conflicts have negative effects on performance, participating actors need to work together to identify sources of conflict and devise instruments to overcome disagreements. When conflict arises, actors are encouraged to share concerns and information in a cross-functional meeting that

can generate mutual respect and understanding (Shapiro, 1977). Victor and Blackburn (1987) conceptualise that increasing degrees of conflict have been associated with the need to use mediated confrontation for problem solving. Consequently, proposition 3 predicts that a coordination mechanism will be driven to explicitly expose and resolve conflict between functions.

## **Research method**

This research examines how participating actors become involved in the creative design process and under what circumstances they carry out certain coordination mechanisms. The case research method was selected because this study is concerned with a how question which seeks an understanding of a phenomenon in the real world over which investigators have little - or no - control (Yin, 1994). A case study is defined as an empirical inquiry that examines an existing phenomenon within a certain real life context when the boundaries between phenomenon and context are not clearly obvious and in which multiple evidence is used (Yin, 1994).

Case study methods can be used to pursue different research objectives such as to provide description, test theory, and generate theory (Yin, 1994). The case research method used in this paper is an explanatory case study where a set of propositions is developed and tested. Moreover, the concept developed in this study is still in the early stage of theory development. Yin (1994) states that when investigating key events that may have little theoretical background, a researcher might select a single setting that provides the best representation of the phenomenon. Benbasat *et al.* (1987) mention that single case study projects are most useful in the initial stage of theory generation or exploration and during the late stage of theory testing. McCutcheon and Meredith (1993) also contend that a single case study provides a high degree of control for testing a new theory. Lee (1989) states that a single case study has a rigorous method in examining a phenomenon that exists in a real-world setting. Additionally, a number of other researchers have also used a single case study in their research (e.g., Dowlatshahi, 2000; Howson and Dale, 1991; Lockamy and Spencer, 1998).

The real-world setting of this study is the creative design process in a fashion firm. The creative design process in a fashion firm is considered important due to its uniqueness characterised by high task uncertainty, high responsibility interdependence, and the existence of various conflicts between functions. It is also noteworthy because the fashion firm consists of complex interdependent tasks that require tight coordination to achieve adequate flexibility to respond to the changing nature of customer needs.

### **Data collection and analysis**

Data were collected from Almanda, a nationwide fashion firm in Indonesia. Almanda had 507 employees and more than 6 million dollar annual sales in 2001. Four main fashion brands designed by Almanda include Personal Style (PS), M2000, Colour Box (CB), and Alma. Those fashion products are distributed to 77 stores spread over 35 cities in Indonesia. In addition, Almanda had focused on its core activities that include designing, brand management (pricing, advertising, and promotion), quality assurance, and distribution. Peripheral activities - such as fabric and garment manufacturing - are subcontracted to external parties. Coordination becomes a main challenge for Almanda in bringing together both interrelated functional groups within the firm and external parties. The findings from this research thus can be generalised to some extent due to the similar problems of coordination found in other fashion firms.

A combination of direct observations and semi-structured interviews was used to collect the required data. A standardised case study protocol was used to ensure the reliability of the collected data (Yin, 1994). The concept of the questionnaire used for conducting the interviews was developed around the content of the research propositions. The informant at the firm was asked to test the questionnaire to ensure clarity of content, suitability of format, accuracy of questions, and the ease of use.

Personal interviews were held with the business development manager and other operational staff from creative designers, production designers, purchasing and inventory assistants, quality controllers, and store operators. As those people

have intimate knowledge of and experience in the coordination processes, their perceptions represent the situation within the firm accurately. A semi-structured questionnaire was used to elicit their perceptions about decision domains, shared work objects, task uncertainties, coordination problems, and coordination mechanisms between functions and with external parties.

Observations on the firm's operations and regular meetings were also conducted to investigate the practice of coordination. The data collected from observations were used to verify data from interviews as well as to extend in-depth explanation. The informant was asked to verify the findings from data analysis. Through using multiple sources of evidence, matching the pattern of data collected from observations and data obtained from interviews, and requesting the assistance of the informant for verifying data analysis, this study is believed to have attained internal and construct validity (Yin, 1994).

Collected data were used to describe the coordination structure of the creative design process, to identify coordination mechanisms, and to identify contingency factors that influence coordination mechanisms. Findings from data analysis were then utilised to test the research propositions. The next two sections provide the findings of this case study.

### **Coordination mechanisms at Almanda**

A coordination mechanism is a means or a procedure taken to administer the interdependence between functions. This research applied the coordination structure approach and relied upon results from interviews to identify various coordination mechanisms in the firm. In general, two forms of coordination mechanisms were identified in this study, namely the interface arrangement and the coordination meeting. This section presents these two forms of coordination mechanisms.

A coordination structure is defined as a diagram that describes a configuration of actors who have interdependent responsibilities to create, use, and modify a set of shared work objects (Bailetti *et al.*, 1998). Association between an actor and a

set of shared work objects specifies the actors' responsibilities. If the actors have associations with one or more of the same shared work objects, then the responsibilities of the actors are interdependent. Coordination structure has been used as a representation tool for describing international collaborative technology arrangements (Bailetti and Callahan, 1993), a normative tool for managing complex projects in uncertain environments (Bailetti *et al.*, 1994), and a basis for data collection and analysis on temporal changes in the responsibility structure of a project (Bailetti *et al.*, 1998).

Figure 1 depicts the coordination structure at Almanda composed of the relevant actors in the creative design process, the work objects that they share, and the associations between actors and shared work objects. This diagram also describes how the workflow is structured. There are six internal and two external actors involved in the creative design process. The internal actors included the business development manager, creative designer, production designer, purchasing and inventory assistant, distribution centre staff, and store operator, whereas fabric and garment suppliers are the external actors. Additionally, there are sixteen shared work objects such as historical demand, fashion trends, working board, fabric prototypes, merchandise specifications, and product samples.

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Take in Figure 1  
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There are a number of interface arrangements between two or more functions in Figure 1. An interface arrangement is defined as the extent to which two or more actors define and specify the service quality level and deliverables of a work object which is shared amongst them. To name a few, the interface arrangement between the business development manager and the store operator is around historical customer demand. The interface arrangement between the business development manager and the creative designer is around defining and creating fashion trends. The interface arrangement between the creative designer and the production designer is around the working board, fabric requirements, and

product samples. The interface arrangement between the production designer and the purchasing and inventory assistant is around selected supplier lists.

The creative design workflow was as follows. The business development manager (BDM) acted as a coordinator for each brand. This manager is responsible for coordinating the efforts of interrelated actors to attain seasonal objectives such as creating prospective designs, higher sales, and lowered markdowns for each fashion brand.

The participating actors work around seven months for each season to define, design, and deliver products. There are four seasons in a year. For each season, the business development manager receives a historical demand analysis from the store operator and then provides information about fashion trends to the creative designer. The creative designer then develops a working board that describes fashion trends including colours and fabric requirements. The production designer translates the working board into merchandise specifications that scale the designs into the appropriate real sizes. Data about styles, colours, and fabric types are also passed to the purchasing and inventory assistant (PIA). The PIA, the interface between Almanda and its suppliers, is responsible for searching and selecting fabric suppliers and garment manufacturers. The selected suppliers and manufacturers are contracted and required to produce fabrics and garments according to order quantity and delivery plans set by the development manager. However, before garments are mass-produced, the garment manufacturers are required to present samples. The samples are then sent to both the creative designer and the production designer for verification and modifications if needed. Once a sample has been approved, the manufacturers produce based on the required order quantity. Next, the manufacturers send the final garments to Almanda's distribution centre. The distribution centre is responsible for ensuring just-in-time merchandise delivery to stores. Finally, the store operator sells the merchandise and reports the historical demand to the business development manager.

By exclusive arrangement with Matahari, the largest retailer in Indonesia, Almanda is able to manage its own counters in Matahari's stores. More than 70% of Almanda's products are sold through this channel. Almanda has developed an online information system with its counters that allows it to know how many items are sold in each store in real time. Almanda also assigns its fashion assistants to each counter to capture end customer needs on the spot.

In addition to the interface arrangements between functions, Almanda also carries out formal and scheduled meetings as collective coordination mechanisms to evaluate both what has happened and what will need to be done in the future. The participants in the meetings come from the core departments. Counted backwards, each season must be started 28 weeks or 7 months before delivery date to the stores. In each seasonal cycle, there are five coordination meetings: post-seasonal evaluation (the starting point), seasonal strategy (5<sup>th</sup> week), production plan (9<sup>th</sup> week), merchandise review I (17<sup>th</sup> week), and merchandise review II (21<sup>st</sup> week). Each coordination meeting may last one day but may continue to the next day.

Every season starts with a post-seasonal evaluation meeting. In this meeting, the store operator presents the results of fashion products sales compared to their competitors in last three months (i.e., one selling season). Furthermore, the store operator gives feedback to the meeting members by explaining why consumers like or dislike the articles of clothing. In the 5<sup>th</sup> week, the seasonal strategy coordination meeting is held. The merchandise inventory controller presents sales and inventory budget, the BDM presents the seasonal strategy, and the creative designer shows a rough plan about fashion trends, styles, colours, and fabric requirements. The seasonal strategy describes business trend planning, order quantity and delivery plans, product style (basic, update, fashion), merchandise mix, distribution pattern, promotions, and pricing directions.

A coordination meeting for the production plan is held in the 9<sup>th</sup> week. In this meeting, the creative designer presents the working board, the BDM updates

production quantity and products delivery, and the production designer presents fabrics. The meeting is also responsible for enriching the working board.

In the 17<sup>th</sup> week, a coordination meeting of merchandise review I is held. In this meeting, the creative designer presents samples, the BDM updates original seasonal strategy to match with actual condition, and the merchandise inventory controller presents the sales and inventory plan. Samples can be revised several times (e.g., pre-sample, pre-final sample, and final sample) depending on the results of the meeting. However, they might be discontinued from the next processing steps as well. While the forum agrees to change pre-samples, the creative designer will carry out the revision. Finally, a coordination meeting of merchandise review II is held on the 21<sup>st</sup> week. In this meeting, the creative designer re-presents revised and final samples. Once samples have been approved, the production designer creates production instructions to be used by the garment suppliers in the production process.

## **Results**

The propositions in this study can be evaluated by comparing findings from the data collection with the theory. The presentation of the findings is summarised by a series of propositions. In this way, each proposition is repeated as a theory statement and followed by a statement of reality as shown in practice. The discrepancy between theory and practice is then discussed in more detail. This section presents the results of the propositions testing.

In theory, proposition 1 predicts that coordination between two or more actors facilitates their responsibility interdependence represented by shared workflow that links their individual processes. In practice, Almada used two forms of coordination mechanisms to facilitate the accomplishment of shared work objects. First, Almada uses interface arrangements based on standard operating procedures (SOP) to coordinate the interface between two or more divisions. Interface arrangements specify a shared work object, mutual adjustment, and schedules between two divisions. Second, coordination meetings are held to facilitate collective problem solving around the issues of delivering products to

end customers. Through the use of scheduled coordination meetings, all of the participating actors work together to accomplish mutually agreed-upon objectives and deadlines.

Although Almanda uses two forms of coordination mechanisms, a shared view of the workflow is not explicit for all participating actors. This is because the relationship between actors is driven by the sequential approach to product design, material and production outsourcing, and distribution. Therefore they try to complete their own tasks rather than ensuring the overall workflow of creating customer value. For example, there is a sequential workflow between the production designer and the purchasing and inventory assistant (PIA) because the PIA depends on fabric requirements which are supplied by the creative designer. Any delay in supplying this information might add to delays of searching times, especially while the supplying of fabric requirements is outsource in Hong Kong. Second, an overlapping of work object occurs between the interface arrangement and the merchandise review meeting. For instance, samples are a shared work object in the interface arrangement between the creative designer and the production designer. The same objects are also used in merchandise review meetings. Consequently, coordination meetings generated additional delays for the creative designer in terms of multiple revisions of samples. The sequential approach to facilitating responsibility interdependence in Almanda decelerated the speed of response to changing fashion in the marketplace.

In theory, proposition 2 predicts that a coordination mechanism will enable actors to cope with various uncertainties along the workflow. In practice, coordination mechanisms at Almanda encourage each actor to handle his/her own kinds of uncertainties. Addressing uncertainties occurred mainly in the interface arrangements between functions. Moreover, there is no formal procedure for identifying various uncertainties in the coordination meetings although the primary objective of the merchandise workflow is to meet seasonal schedules on time.

In fact, when the respondents were asked about what uncertainties they saw in the future, they focused on four major uncertainties: the ability of the creative designer to translate customer needs into a working board and still meet seasonal scheduled milestones (i.e., task uncertainty), the ability of the PIA to search and select suppliers (i.e. task uncertainty), the ability of suppliers to provide a high quality of fabric prototypes and samples (i.e., supplier lead-time uncertainty), and the ability to respond to changing customer preferences (i.e., demand uncertainty). The main concern for the creative designer is supplier uncertainty in providing fabrics, samples, and finished goods that match with the working board. Several reasons for delays in translating fabric requirement into fabric include the fact that the PIA and the fabric supplier did not achieve negotiated prices, suppliers failed to produce the required quality due to technological limitations, and a laboratory dipping process needed to be repeated because the right colour had not been achieved. Some problems during the translation from the working board into samples included different perceptions between the creative designer and the production designer, late delivery of merchandise specifications from the production designer to the garment supplier, late delivery of samples from the garment supplier, and poor quality of samples.

In theory, proposition 3 predicts that a coordination mechanism will enable actors to explicitly consider conflict. In practice, coordination mechanisms carried out at Almanda had not addressed existing conflicts. The interface arrangements between functions dealt mainly with misperception about the shared work object. This problem was solved by a discussion among the actors concerned. However, coordination meetings overlooked the existence of ambiguity in decision-making authority. This ambiguity occurred when the forum – rather than the creative designer - had authority to approve samples. For example, critics from the store operator in the merchandise review meetings regarding the market prospect of a sample had no clear criteria, but based their decisions on personal opinions.

An evaporating cloud diagram is adopted to expose the above conflict (see Goldratt, 1994, for various uses of evaporating cloud diagrams). The diagram consists of the desired objective, two necessary requirements that lead to the

objective, and the conflicting prerequisites that satisfy requirements. The conflict is either an opposite condition or mutually exclusive options between prerequisites. This conflict occurs because of the existing assumptions that underlie the arrows throughout the diagram. One can resolve the conflict by invalidating an erroneous assumption underlying the arrow (Goldratt, 1994).

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Take in Figure 2  
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As shown in Figure 2, the objective of the creative designer is to effectively develop market prospective designs. In order to effectively develop prospective designs, the creative designer must assimilate creativity into innovative designs. In order to assimilate creativity into innovative designs, the creative designer must have full authority to approve samples. At the same time, in order to effectively develop prospective designs, the creative designer must consider customer needs, budgets, and deadlines (i.e., technical and economical feasibility). In order to consider customer needs, budgets, and deadlines, the creative designer must have a coordination meeting to approve samples. Having full authority to approve samples is in direct conflict with having a coordination meeting to approve samples because the creative designer does not have freedom to fully express his/her ideas in creating concepts. One respondent who described this situation said that she preferred to call herself a product developer rather than a designer.

## **Discussion**

This section presents implications of the research for Almanda and practitioners in general, research limitations, and recommendations for future research. Although Almanda has used several coordination mechanisms along the creative design process, those coordination mechanisms have not enabled Almanda to cope with various uncertainties and conflicts. Some of the reasons were the sequential approach to the creative design process and the fact that little attention was paid to determining which division acts as the leading division that

contributes the most to the firm's competitive advantage. Two recommendations are proposed to remedy these situations. First, coordination meetings are supposed not to go through checklists but to evaluate process-based performance measures and how each individual division can contribute to that performance (Lapide, 2000; Lockamy and Spencer, 1998). Bases for performance measures that span across functions include time (e.g., rapid response to the market, faster outsourcing process, and faster introduction of new products), quality improvement, customer service, and cost reductions (Lapide, 2000; Walker *et al.*, 2000). In doing these things, participating actors can see deficiencies of overall performance and try to solve problems such as shortening lead-times and improving the quality of products (Forza *et al.*, 2000). Therefore, Almanda needs to improve its means of reducing uncertainties and increasing flexibility in its coordination meetings.

Second, a coordination mechanism must focus on the function that mostly contributes to the key success factor in fulfilling dynamic consumer needs (Fisher, 1997). It is suggested that the creative department plays the main role in translating market signal into acceptable products and accelerating design times (Moxey and Studd, 2000). Forza *et al.* (2000) found that reductions in design times can be achieved in two ways: by applying concurrent design of fabrics and samples and speeding up design activities. Other divisions act to concurrently support the design process in accelerating the time-to-market of new products.

Almanda thus needs to empower its creative department to read fashion trends, create innovative designs that meet customer needs, apply concurrent design, require feedback from the store operation department, and have authority to develop, in itself, creative performance appraisal. Caudron (1994) suggests that companies need to allow creative people to manage and evaluate the creative process by themselves. Consequently, the ambiguity of decision-making authority - as shown in Figure 2 - is not whether a creative person creates concept with full authority or with other function intervention, but it is important to authorise power to the creative people themselves as a team to decide market prospective samples (i.e., invalidating the assumption between the conflict arrow

of D and D' in Figure 2). By doing this, the creative people have enough space to develop innovative designs without too many critics. Moreover, in the merchandise review meetings, the participating actors can discuss issues regarding the overall workflow rather than persisting with ineffective discussions to decide whether concepts are realistic prospects or not. To execute this recommendation, performance measurement criteria for the creative designer need to be developed. For example, Hallmark evaluated its creative staff based on several criteria: how the creative manager and senior creative staff assessed the quality of a creative person's portfolio, how well the creative concepts sold, how well a creative design performed in a customer preference test, and how other creative colleagues appraised a creative designer's ability in solving problems and conflicts (Caudron, 1994).

Along with the division of work in the firm comes a desire to implement coordination mechanisms. As implications for practitioners, firms must come to recognise responsibility interdependence, uncertainty, and conflict in developing an integrated response to the changing markets. Recognising these three determinants, firms who wish to develop integration must also build a common performance metric board. By use of a common performance metric board, firms will be better suited to handle the wide variety of uncertainties and conflicts faced by their business units (Lapide, 2000; Shapiro, 1997).

This research contributes to coordination theory literature by combining coordination mechanisms and the three determinants: responsibility interdependence, uncertainty, and conflict. By combining coordination mechanisms with a shared view of responsibility interdependence, uncertainty, and conflict, a more holistic understanding of coordination theory is achieved. A second contribution of this research is the examination of the creative design process in a fashion firm. This study identified the fact that shared objects, uncertainties, and conflicts hold key factors in coordination and provided insights regarding the discrepancy between the theory and the practice of coordination.

Although this research is limited given its exploratory nature and the fact that the findings represented only a single firm, the results suggest avenues for further research on how to align coordination mechanisms with the requirements of responsibility interdependence, uncertainty, and conflict. How does one develop a common performance metric board that links divisional performance measure with the overall objective of the firm? How does one empower and support creative people? Future research could be devoted to achieving a better understanding of the coordination role to improve the contribution of creative people to competitive advantage.

This study is also limited to the understanding of coordination dynamics present within a single setting in a fashion firm. To generalise the findings, future research is required to be further validated using established instruments and across more organisations. The replication should also be conducted with a multiple case study method to obtain more evidence and produce a more detailed understanding of the relationship between coordination and its determinants.

## **Conclusions**

Effective coordination is increasingly important to firms. However, there is still little understanding of the issues involved in matching coordination mechanisms and the contingency factors that influence effective coordination. This study attempts to answer the questions of how participating actors should coordinate their processes and how they should consider the contingency factors. A set of three propositions has been proposed that conceptualised the relationship between coordination mechanisms and their three determinants: responsibility interdependence, uncertainty, and conflict.

Using the case study research method in examining coordination mechanisms within a firm, the findings show that the firm carried out two forms of coordination mechanisms: the interface arrangement and the coordination meeting. However, the sequential approach to the creative design process and a lack of empowerment given to the division that contributes most to competitive

advantage prevents the participating actors from engaging in a shared view of responsibility interdependence, coping with various uncertainties, and resolving conflicts. It is recommended that Almanda needs to focus on the creative department. The creative department has an important role to interpret market signals and translate them into market prospective products. Thus, the creative department needs special empowerment to create product concept, to require feedback from the store operation department, and to develop creative performance criteria by themselves.

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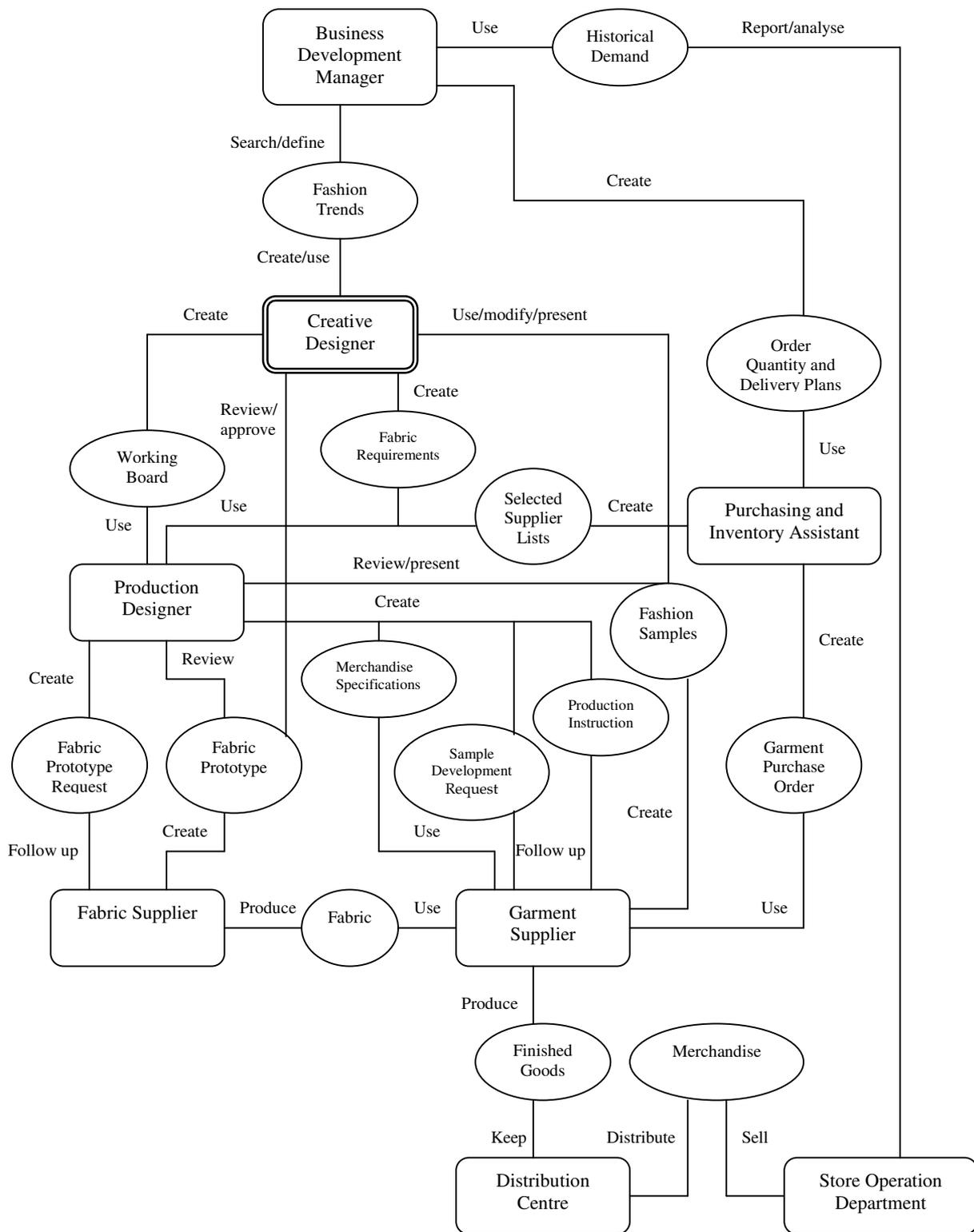


Figure 1. The coordination structure for the creative design process

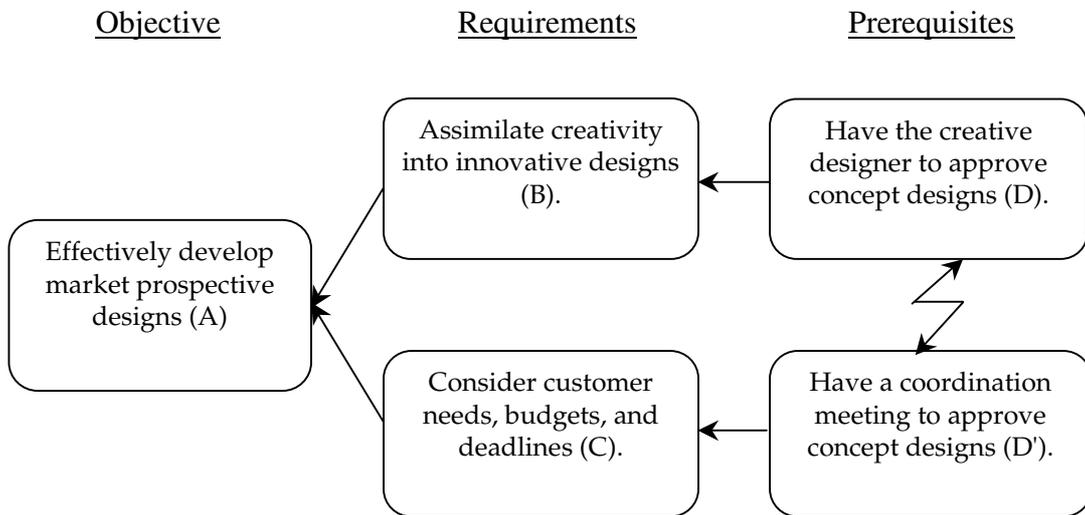


Figure 2. The conflict due to the ambiguity of decision-making authority