APPENDICES

TABLE OF CONTENTS: APPENDICES

APPENDIX I

Studies with large, quantitative samples (n>200) examining internal success factors of NPD/NSD

1974 - 2003

Study	Findings	Dependent variable	Industry
Rothwell, Freeman, Horsley, Jarvis, Robertson, & Townsend, 1974	**Strong customer orientation (+):** • better understanding of customer needs • early identification of customer dissatisfaction • intensive customer training • update of customer information during the NPD process **careful project selection**	Selection of successful (commercial standpoint) and unsuccessful projects by respondents Project level	SAPPHO study
Rubenstein, Chakrabarti, O'Keefe, Sounder & Young, 1976	(1) project structure and process (+): • level of project planning (2) • clarity of performance requirements (3) (2) availability of technical information (+,1) (3) availability of information about characteristics of potential market (+, 2)	3 success measures: (1) technical success (2) overall economic success (3) both technical and economic success	
Utterback, Allen, Hollomon & Sirbu, 1976	• market-oriented factors (+) esp. regarding project intended for specific user or end product	Selection of successful and unsuccessful projects by respondents Project level	Five industries
Sounder & Chakrabarti, 1978	• clarity of problem definition (+, 1, 2) • clarity of understanding user needs (+,1,2)	2 success variables: (1) commercial success (2) technical success project level	
Cooper, 1979, 1980	• Proficiency of NPD process activities (+), esp. the following aspects: market launch prototype test with customer, test marketing-trial sell • Information acquired (+) esp. regarding the following aspects: knowledge of customers' price sensitivity, understanding of buyer behaviour, knowledge of customers' needs, wants and specifications for the product	Analysis of variance between successful and unsuccessful projects 102 successes	Industrial products

Maidique & Zirger, 1984	**Successful innovations were planned more effectively and efficiently (+):** • formalised on paper soon • forecast more accurately (market) • developed with a clearer market strategy **Better matched with user needs (+)**	Selection of successful and unsuccessful projects by respondents (achievement of financial breakeven) Project level	Electronic s industry
Calantone & DiBenedetto, 1988	• **Marketing activities (+)**: esp. marketing resources and skills, competitive and market intelligence • **Technical activities (+)**: esp. technical resources and skills, competitive and market intelligence	Selection of successful and unsuccessful projects (from a profitability standpoint) by respondents Project level	
DeBrentani, 1989	• strong market/ customer orientation (+1,3) • existence of a NPD process (+1, 2, 4)	Reduction of 16 success variables into 4 success dimensions • sales and market share performance • competitive performance • "other booster" • cost performance project level	Industrial services
Cooper & Kleinschmid, 1987 Cooper, 1990a	• **Proficiency of pre-development activities:** esp. regarding the following aspects: initial screening, preliminary market/ technical assessment, detailed market study/ marketing research, business or financial analysis • **Protocol:** esp. well-defined target market, customer's needs, wants and preferences well defined, product concept well defined, product specifications and requirements well defined • **Proficiency of market-related activities:** preliminary market assessment, detailed market study/ marketing research, customer test of prototype or sample, trial selling/ test market, market	Profitability level	Industrial products

	launch • **Proficiency of technological activities:** esp. preliminary technical assessment, product development, in-house product testing, trial pilot production, production start-up		
Easingwood & Percival, 1990	• Overall value of the non-direct benefits were thought to be only slightly less than the direct financial return from the product • If non-direct benefits were not considered in evaluating current or potential new products, nearly half the potential contribution from a product is at risk • Very successful new products were found to yield more non-direct benefits than modestly successful new products	Research aimed to identify non-direct, i.e. non-financial, benefits in the new product evaluation process • Improved company reputation • Increased consumption of existing products by current customers • Increased consumption of existing products by new customers • Improved NPD capability • Enhanced loyalty Helping to move the company in a new direction Project level	18 new financial products
Cooper & DeBrentani, 1991	• Success and failure are strongly associated with eleven important dimensions: synergy, product/market fit, quality of execution of the launch, unique/superior product, quality of execution of marketing activities, market growth and size, service expertise, quality of execution of technical activities, quality of service delivery, quality of execution of pre-development activities, and the presence of tangible elements of the service offering.		Financial services
Dwyer & Mellor, 1991a	• Initial screening (+, 1-3) • Preliminary market and technical assessment (+, 1-3) • Product development (+, 1-3)	Project level: (1) Profitability level (2) Sales	

	• Trial production (+, 1) • Test market/ trial sell/ market launch (+, 2)	(3) Opportunity window Project	
Dwyer & Mellor, 1991b	• initial screening (+ 1, 2) • preliminary market and technical assessment (+, 1, 2) • product development (+, 1, 2, 3) • production start up (+ 1, 2) • pre-commercialisation business analysis (+ 1, 2) • customer tests, test market/ trial sell, market launch (+, 2)	Project level: (4) profitability level (5) sales (6) opportunity window project	
Easingwood & Storey, 1991	Four factors highly correlated with success • overall quality • differentiated product • product fit and internal marketing • use of technology	Success was measured using a self-rated nine-point scale	Consumer financial services
Kotzbauer, 1992	• marketing impact - degree and efficiency of marketing activities (+, 1, 2, 3) • planning quality – planning prior to development: early definition of target market, analysis of customer requirements, development of product concept, assessment of technical specifications (+ 1, 2)	Selection of successful and unsuccessful projects by respondents; 3 success measures: (1) market success (2) financial success (3) strategic success	Technical products
DeBrentani, 1993a	• NSD projects that are strong on formal up-front design and evaluation and had a formal and extensive launch programme are more likely to succeed • NSD processes characterised by a supportive/ high involvement NSD environment and which are expert-driven contribute significantly to success	New services: successful and unsuccessful Project level	Financial services

Cooper & Kleinschmidt 1993a, 1993b	• Quality of execution of the activities that comprise the innovation process esp: initial screening, preliminary market assessment, detailed market study, test market/ trial sell, pilot or trial production, pre-commercialisation business analysis • Product definition prior to development (+), esp. target market defined, product concept/ features defined, benefits of products to customer clear, positioning strategy defined	Successful and unsuccessful products	Chemical industry
Edgett, 1993	• Both market- and competitively-driven approaches are more common than technology-driven approaches • Forman approach to product development is not widely used and there is a lack of a strategic focus to NPD • New product departments are more common in larger institutions • New product screening is based on individual decision-making in 33% of the societies and on group decision-making in 67% of the societies • Preliminary market assessment concentrates on internal research techniques such as reviewing competitors products instead of external techniques • Formal research techniques were rarely employed		UK building societies
Martin & Horne, 1993	Successful firms were found to: • Fit their new services more closely to their current portfolio • Make greater use of customer information • Allow product champions to manage the launch phase of the process • However, there was no difference in the degree of strategic planning behind the process or in the use of a formal process. In	Successful firms: 90% or above success rate for new products Unsuccessful firms: 49% or lower success rate Programme level	US-based service firms

	general, the service firms were lacking in this area • In addition, competitive imitation was used extensively in idea generation		
Cooper, Easingwood, Edgett, Kleinschmidt & Storey, 1994	**Key factors affecting performance:** • Marketing synergy • A market-driven NPD proccess • Effective marketing communication • Customer service • Managerial and financial synergy • Launch preparation	Fourteen measures of performance were used, which were summarised by 3 dimensions: (1) Financial performance (2) Relationship enhancements (3) Market development Project level	Consumer financial services, Canada
Edgett & Parkinson, 1994	• The importance of synergy between the market, new product and the company • Need for increased intra-organisational involvement and integration among departments • Importance of a rigorous development proccess	Successful and unsuccessful new products	Building societies
Parry & Song, 1994	**Proficiency of process activities (+):** • Product development • Market research • Preliminary market assessment • Initial screening • Financial analysis **Information acquired during the new product process (+):** • Knew customer needs, wants and specifications • Knew the market size	Selection of successful and unsuccessful projects by NPD managers Project level	Chinese products

Atuahene-Gima, 1995	Market orientation (+): esp. • Collection and use of market information • Development of market-oriented strategy • Implementation of market-oriented strategy	Building of 2 success dimensions from multiple success variables: • Market performance • Project performance Programme level	
Barczack, 1995	A professional NPD process, esp: • Screening ideas	• Reduction of 6 success variables into one success dimension: performance index • Programme level	Telecommunications industry
Storey & Easingwood, 1995	• Effective communication (1) • Overall company/ product fit (1) • Distribution strength (1, 2) • Market knowledge (1, 3) • A product champion (1) • Staff skills and support (2) • Quality of service delivery (2) • Compatibility/ importance (2, 3) • Quick response (- , 2) • Product, tangible quality (3) • Product distinctiveness (3)	(1) Sales performance (2) Profitability (3) Enhanced opportunities	UK financial services
Cooper & Kleinschmidt 1995, 1996	Significant characteristics of "solid performer" (+) was a high-quality product process (construct, esp. • Quality of process execution • Completeness and throroughness • Emphasis on up-front work (pre-development) • Sharp, early product definition (rior to development work) • Tough go-kill decision points where projects really get killed	NPD programme: • Programme impact (sales) • Programme profitability Cluster analysis based on the 2 success dimensions: • Solid performer • High-impact technical winners	Industrial products

	• Flexibility of process • Strong market orientation	• Low-impact performer • Dogs	
DeBrentani & Ragot, 1996	• Fit with market needs • Fit with marketing resources • Staying close to home • Superior service • Market potential • Staff expertise • Effective development culture • Customer participation in product or service	Product performance	Professional business to business services
Mishra, Kim & Lee, 1996	**Impact of proficiency of the formal NPD activities (+):** • initial screening • detailed market study or market research • prototype testing in-house **intelligence acquired about the market (+):** • knew customer needs, wants, and specifications for the product • knew customer price sensitivity • knew competitor products strategies	Selection of successful and unsuccessful projects by marketing managers Project level	Cross-country comparison
Song & Parry, 1996	• proficiency of the predevelopment planning process (+, 1-4) • concept development and evaluation proficiency (+, 1-4) • market information (+, 1-4) • technological information (+, 1-4) • marketing research proficiency (+, 1-4)	4 success dimensions out of 12 single economic success variables: (1) product profitability (2) relative sales performance (3) relative market share performance (4) window of opportunity	
Sounder, Buisson &	• proficiency of marketing activities during the NPD process (+) • proficiency of technical activities during the NPD process (+)	Consensus of multiple respondents on the success or failure (commercial	High technolog

Garrett, 1997	• marketing skills (knowledge about the market) (+)	standpoint) of the project Product level	y firms: US and NZ
Calantone, Schmidt & DiBenedetto, 1997	• predevelopment marketing activities (+) • predevelopment technical activities (+) • marketing activities (+) • technical activities (+)	Selection of successful and unsuccessful projects (from a profitability standpoint) by respondents Project level	
Griffin, 1997	Significant differences between "best" (+) and "Rest" (-) • existence of a formal NPD process where "best" include any particular step in the NPD process	4 success dimensions out of 7 single economic success variables • overall success • relative success • market success • financial success classification of firms in "best" and "rest" based on the 4 success dimensions	
Song & Parry, 1997	• proficiency of activities in business/ market opportunity stage (+)	3 success dimensions (see S&P, 1996) (1) relative profitability (2) relative sales (3) relative market share project level	Cross-national: Japan & US
Balbontin, Yazdani, Cooper & Sounder, 1999	• good proficiency of marketing and design activities (+) • accurate market forecasts and predictions about customer requirements (+)	Selection of successful and unsuccessful projects by respondents	American and British firms

Gruner & Homburg, 1999	Significant differences between "big hits" (+) and flops (-) are (1) intensity of customer involvement in: • idea generation • concept development • assessment and selection of prototypes • market launch (2) characteristics of customers involved in NPD: • higher economic attractiveness • lead-user characteristics • scope of business relationship with customer	4 success dimensions out of 16 single economic success variables • new product quality • economic success with new product • quality of NPD process • cost advantages derived from new product cluster analysis based on the 4 success dimensions; "big hits" and "flops" form the basis for further analysis project level	
Schmalen & Wiedemann, 1999	• proficiency of market launch • market research capabilities	Selection of successful and unsuccessful projects by respondents Project level	High-technology products
McDonough III, 2000	**Stage setting variables (+)** • project goals • empowerment • human resources climate **Enablers (+)** • team leaders • managers • champions **Team Behaviours (+)** • cooperation • commitment • ownership • trust	Investigation of factors contributing to the success of cross-functional teams	Various

Bharadwaj & Menon, 2000	• Individual and organizational creativity mechanisms led to the highest level of innovation performance. • High levels of organizational creativity mechanisms (even in the presence of low levels of individual creativity) led to significantly superior innovation performance than low levels of organizational and individual creativity mechanisms.	Innovation performance investigated in 5 functions: • Marketing • Research & Development • Sales • Distribution • New product development	various
DeBrentani, 2001	**Success factors which govern the outcome of new service ventures, regardless of their degree of newness:** • ensuring an excellent customer/need fit • involving expert front line personnel in creating the new service and in helping customers appreciate its distinctiveness and benefits • implementing a formal and planned launch program for the new service offering **Success factors for low innovativeness:** • leveraging the firm's unique competencies • experiences and reputation through the introduction of new services that have a strong corporate fit • installing a formal "stage-gate" new service development systems particularly at the front-end and during the design stage of the development process • ensuring that efforts to differentiate services from competitive or past offerings do not lead to high cost or unnecessarily complex service offerings. **Success factors for new-to-the-world business services:** • a corporate culture that encourages entrepreneurship and creativity, and that actively involves senior managers in the role	• 104 items that measure success/failure dimensions • technological-newness and market-newness	Industrial Services

	of visionary and mentor for new service development. • good market potential and marketing tactics that offset the intangibility of "really new" service concepts		
Avlonitis, Papastatho-poulou, & Gounaris, 2001	• the performance outcome of a new service is the result of the development process followed, which, in turn, is influenced by the innovativeness of the new service. • six distinct service innovativeness types exist. They can be represented in the form of a continuum depending on the degree of innovativeness that characterizes each type. At the most innovative extreme of the continuum is the new-to-the-market services followed by new-to-the-company services, new delivery processes, service modifications, service line extensions, with the least innovative end service being repositionings	New service performance distinguished by financial and non-financial performance	Financial Services
Hart, Hultink, Tzokas & Commandeur 2003	Companies use different criteria at different NPD evaluation gates. While such criteria as technical feasibility, intuition and market potential are stressed in the early-screening gates of the NPD process, a focus on product performance, quality, and staying within the development budget are considered of paramount importance after the product has been developed. During and after commercialization, customer acceptance and satisfaction and unit sales are primary considerations.	7 Performance Dimensions: • product uniqueness • market potential • market acceptance • market chance • technical feasibility • intuition • financial dimension	various
Thieme, Song & Shin, 2003	What project management characteristics will foster the development of new products that are more likely to survive in the marketplace: Projects are best led by managers with strong technical, marketing, and management skills, using a participative style and enjoying early and continuous support from senior management. These project management dimensions promote cross-functional integration and planning.		various

APPENDIX II.

Contact Letter to IT Manager, Team Manager, and Team Member

City University Business School London

Mr Stephen Barlow
Head of IT
Abbey National
Abbey House
215 - 229 Baker Street
London NW1 6XL

Dear Mr Barlow,

Re: Research Project, City University Business School

At City University Business School we are currently managing a research project trying to uncover the primary drivers of corporate innovativeness. Tied in with this overarching objective, our study investigates ways in which virtual teams are deployed in complex new product and new service development (NPD/ NSD) projects in financial services businesses.

Our objective in talking to IT Managers of financial service businesses is to hear first hand accounts on how virtual teams are deployed in banking in general and in new service development in particular. IT Managers we have had a chance to interview so far have provided us with interesting insights.

We are contacting you because we are highly interested in talking to you about the challenges and opportunities associated with virtual teamwork. The interview will take no more than 45 minutes. The data will be used for academic purposes only.

I will phone you within the next few days to arrange for a convenient interview date/ time.

Yours sincerely,

Marc Wein

City University Business School
e-mail: M.Wein@city.ac.uk
Tel:
Fax:

City University Business School London

Mr John Hasson
Head of Global Investment
Abbey National
Abbey House
215 - 229 Baker Street
London NW1 6XL

Dear Mr Hasson,

Re: Research Project, City University Business School

Your name was suggested to us by Mr Stephen Barlow, Head of IT at Abbey National, London. He pointed out that you have significant experience with the development of new products and new services at Abbey National. In addition, you are adept with the management of virtual teams, e.g. groups of geographically and/or organizationally dispersed co-workers that co-operate mainly through Information Technologies.

At City University Business School we are currently managing a research project trying to uncover the primary drivers of corporate innovativeness. Tied in with this overarching objective, our study investigates ways in which virtual teams are deployed in complex new product and new service development (NPD/ NSD) projects in financial services businesses.

Our objective in talking to executives and managing directors of financial service businesses is to hear first hand accounts on how they manage virtual teams and provide guidance for effective virtual teamwork. For this reason, we are currently running a series of personal interviews. Team leaders we have had a chance to interview so far have provided us with interesting insights.

We are contacting you because we are highly interested in talking to you about the challenges associated with managing virtual teams in the context of new service development. The interview will take no more than 90 minutes. The data will be used for academic purposes only.

I will phone you within the next few days to arrange for a convenient interview date/ time.

Yours sincerely,

Marc Wein

City University Business School
e-mail: M.Wein@city.ac.uk
Tel:
Fax:

City University Business School London

Mrs Kim Chua
Director
Abbey National
2 Triton Square
London NW1 3AN

Dear Mrs Chua,

Re: Research Project, City University Business School

John Hasson, Head of Global Investment, has recommended you as one of his key associates in the development of new services and products. We had the pleasure to interview Mr Hasson in the context of a research study currently conducted by City University Business School.

At City University Business School we are managing a research project trying to uncover the primary drivers of corporate innovativeness. Tied in with this overarching objective, our study investigates ways in which virtual teams are deployed in complex new product and new service development (NPD/ NSD) projects in financial services businesses. Our objective in talking to executives and associates of financial service businesses is to hear first hand accounts on their experience with virtual teams and virtual teamwork.

Mr Hasson pointed out that you have significant experience with the development of new products and new services at Abbey National. In addition, you are adept with the workings of virtual teams, e.g. groups of geographically and/or organizationally dispersed co-workers that co-operate mainly through Information Technologies.

We are contacting you because we are highly interested in talking to you about the challenges associated with virtual teamwork in the context of new service development. The interview will take no more than 60 minutes. The data will be used for academic purposes only.

I will phone you within the next few days to arrange for a convenient interview date/ time.

Yours sincerely,

Marc Wein

City University Business School
e-mail: M.Wein@city.ac.uk
Tel:
Fax:

APPENDIX III.

Interview Guide: Team Leader and Team Member

Interview Guide: Team Leader

Before we start let me briefly remind you of the purpose of this study. At City University Business School we are currently managing a large research project trying to uncover the primary drivers for successful new service development. This part of the study investigates ways in which virtual development teams are deployed in new product and service development (NPD/NSD) projects in financial services businesses.

More specifically, we are interested in your experience as the team leader and team manager of virtual teams in new service development. As you told me on the phone, the following definition of a virtual team is applicable to your area of expertise: "Virtual NSD teams in this organization are groups of geographically and/or organizationally dispersed co-workers that co-operate mainly through impersonal communication modes to accomplish the organizational task of initiating, developing and launching a new product or service".

I would like to structure the interview the following way (*be intentionally vague*):

First, I would like you to tell me a bit about your position and your work area.

Second, I would like you to select two development projects and tell me about your involvement in these projects.

Lastly, I have some questions concerning the overall organization.

I have to stress at this point that we will treat all information with the utmost confidentiality. Also, we will not mention your name or the name of the company in case of publication.

1. INTRODUCTION

1.1 So tell me a bit about yourself, how long have you been working for your company, what are your responsibilities?

Prompts:
- Who do you report to?
- Where did you work before?
- You are in charge of how many people?
- What is your exact job title?

1.2 When you think about your recent work, did you somehow participate in the development of new services?

Prompts:
- What kinds of services or products do you develop?
- Are these developments executed in teams and projects?
- In how many development projects are you usually involved?
- In how many development projects are you currently involved?

2. THE HIGHER PERFROMING TEAM

Now, I would like you to select one NSD project where team performance was high. However, please make sure that the project had met at least three out of these four criteria.

1. **Project was completed on time.**
2. **Project was completed on budget.**
3. **You were personally satisfied with the project.**
4. **The team was collectively satisfied with the project.**

May I also remind you that the project should have been fully completed within the last three years.

I would like you to answer all the following questions with regards to this specific project.

2. 1 Project Background/High

2.1.1 So, tell me about the project, what was developed and what was your involvement?

Prompts: Would you describe this development a product development or a service development?
What was the degree of newness of this development in the company context? The industry context?
From where originated the idea for this development?

2.1.2 How long did it take to complete the project?

Prompts: When exactly did the project start? When did it end?

I brought with me an illustration that shows three broadly defined development phases (*show illustration and leave it in front of respondent*): Initiation Phase, Development Phase, and Implementation Phase. Does this make sense to you? Are these three project phases applicable to the project we are talking about? If not, please make amendments.

2.2 Initiation Phase/High

In the following I would like you to talk about each of these three development phases (*point to illustration*) in more detail. Let's talk first about the initiation phase.

2.2.1 Please tell me about the size of the team, the team members involved, and the functions involved during the initiation phase?

Prompts: What kind of experts, from what departments, for which functions? Any members external to the organization (e.g. consultants, clients)?
What was the geographic location of the team members?

2.2.2 Had these team members worked together before?

Prompts: Had every team member the same degree of experience with this kind of project?
Did every team member know the other members personally?
Did you, the team leader, know every team member personally?
Who selected the team members? On what basis were the team members selected?

2.2.3 What was the overall objective of the initiation phase? Did the team meet this objective?

Prompts: What other objectives were met? What objectives were not met? Who established these objectives? Who monitored the attainment of these objectives? – And how?

2.2.4 Please describe to me the major work tasks over initiation?

Prompts: How familiar was the team with these tasks?
How would you describe the quality of task execution?
What was the biggest challenge for you at this phase? For the team?
Was the work interrupted by unexpected problems at this phase?
How intensely did the team interact at this phase?
To what extent did the team require assistance from third parties?

2.2.5 On a day-to-day basis, how did you interact with the other team members?

Prompts: Through what kind of communication modes did you typically interact with the team members?
How often did you interact with team members per day? How much time per day did you spent on interacting with team members?
Did you interact with some members more often than with others?
Did you send/receive memos and/or circulars to interact with team members? If so, what was the content of these? How often did you send/receive these?

2.2.6 Over initiation, how did you manage the project on a day-to-day basis?

Prompts: Did the team members require your advice and guidance in executing the project work? If so, how did you provide advice and guidance?
Did you monitor project progress? If so, how did you monitor progress?
Were there any short-term objectives established? If so, who established these? How did you circulate these objectives within the team? How did you ensure that these objectives were met?

2.2.7 Over initiation, what was the most important issue that needed to be addressed?

Prompts: Who identified this issue? How was the issue handled? Who decided upon this issue? Was it difficult to reach a decision on this issue?
Give me an example for an issue of lesser importance: Who identified this issue? How was this issue handled? Who decided upon this issue?
Over initiation, was senior management involved in decision-making? If so, in what way and for what decision?

2.2.8 Over initiation, did the team conduct team meetings?

Prompts: If so, were these meetings spontaneous or scheduled?
Give me an example for a spontaneous meeting, for a scheduled meeting?
Through what communication modes were the scheduled meetings conducted?
Who participated in these meetings? – The entire team?
How often did the team conduct scheduled meetings?
How far in advance was a meeting scheduled? Who scheduled it?
How were the team members informed about the schedule?
Was there an agenda for scheduled meetings? Give me an example for such an agenda. Who drafted it? How was it circulated throughout the team?

2.2.9 Over initiation, was there any source of conflict within the team?

Prompts: How would you describe the quality of communication within the team?
Did the team members have steady access to all information relevant to their work?
Did each team member know the responsibilities of the other members?
Were the team members able to contact and communicate with other members without delays and errors?
Did the team members get adequate feedback from other members in a timely manner?
Were the team members informed about the work progress of other members?

2.3 Development Phase/High

Now let's move on with the development process and talk about the phase of the actual service development.

2.3.1 Compared to the previous phase, what had changed in regards to the size of the team, the team members involved, and the functions involved?

Prompts: What kind of experts, from what departments, for which functions? Any members external to the organization (e.g. consultants, clients)?
What was the geographic location of the team members?

2.3.2 (if applicable) Had these team members worked together before?

Prompts: Had every team member the same degree of experience with this kind of project?
Did every team member know the other members personally?
Did you, the team leader, know every team member personally?
Who selected the team members? On what basis were the team members selected?

2.3.3 What was the overall objective of the development phase? Did the team meet this objective?

Prompts: What other objectives were met? What objectives were not met? Who established these objectives? Who monitored the attainment of these objectives? – And how?

2.3.4 Please describe to me the major work tasks over development?

Prompts: How familiar was the team with these tasks?
How would you describe the quality of task execution?
What was the biggest challenge for you at this phase? For the team?
Was the work interrupted by unexpected problems at this phase?
How intensely did the team interact at this phase?
To what extent did the team require assistance from third parties?

2.3.5 On a day-to-day basis, how did you interact with the other team members?

Prompts: Through what kind of communication modes did you interact with the team members?
How often did you interact with team members per day? How much time per day did you spent on interacting with team members?
Did you interact with some members more often than with others?
Did you send/receive memos and/or circulars to interact with team members? If so, what was the content of these? How often did you send/receive these?

2.3.6 Over development, how did you manage the project on a day-to-day basis?

Prompts: Did the team members require your advice and guidance in executing the project work? If so, how did you provide advice and guidance?
Did you monitor project progress? If so, how did you monitor progress?
Were there any short-term objectives established? If so, who established these? How did you circulate these objectives within the team? How did you ensure that these objectives were met?

2.3.7 Over development, what was the most important issue that needed to be addressed?

Prompts: Who identified this issue? How was the issue handled? Who decided upon this issue? Was it difficult to reach a decision on this issue?
Give me an example for an issue of lesser importance: Who identified this issue? How was this issue handled? Who decided upon this issue?
Over development, was senior management involved in decision-making? If so, in what way and for what decision?

2.3.8 Over development, did the team conduct team meetings?

Prompts: If so, were these meetings spontaneous or scheduled?
Give me an example for a spontaneous meeting, for a scheduled meeting?
Through what communication modes were the scheduled meetings conducted?
Who participated in these meetings? – The entire team?
How often did the team conduct scheduled meetings?
How far in advance was a meeting scheduled? Who scheduled it?
How were the team members informed about the schedule?
Was there an agenda for scheduled meetings? Give me an example for such an agenda. Who drafted it? How was it circulated throughout the team?

2.3.9 Over development, was there any source of conflict within the team?

Prompts: How would you describe the quality of communication within the team?
Did the team members have steady access to all information relevant to their work?
Did each team member know the responsibilities of the other members?
Were the team members able to contact and communicate with other members without delays and errors?
Did the team members get adequate feedback from other members in a timely manner?
Were the team members informed about the work progress of other members?

2.4 Implementation Phase/High

Now let's conclude the development process and talk about the final phase, the implementation phase.

2.4.1 Compared to the previous phase, what had changed in regards to the size of the team, the team members involved, and the functions involved?

Prompts: What kind of experts, from what departments, for which functions? Any members external to the organization (e.g. consultants, clients)?
What was the geographic location of the team members?

2.4.2 (if applicable) Had these team members worked together before?

Prompts: Had every team member the same degree of experience with this kind of project?
Did every team member know the other members personally?
Did you, the team leader, know every team member personally?
Who selected the team members? On what basis were the team members selected?

2.4.3 What was the overall objective of the implementation phase? Did the team meet this objective?

Prompts: What other objectives were met? What objectives were not met? Who established these objectives? Who monitored the attainment of these objectives? – And how?

2.4.4 Please describe to me the major work tasks over implementation?

Prompts: How familiar was the team with these tasks?
How would you describe the quality of task execution?
What was the biggest challenge for you at this phase? For the team?
Was the work interrupted by unexpected problems at this phase?
How intensely did the team interact at this phase?
To what extent did the team require assistance from third parties?

2.4.5 On a day-to-day basis, how did you interact with the other team members?

Prompts: Through what kind of communication modes did you interact with the team members?
How often did you interact with team members per day? How much time per day did you spent on interacting with team members?
Did you interact with some members more often than with others?
Did you send/receive memos and/or circulars to interact with team members? If so, what was the content of these? How often did you send/receive these?

2.4.6 Over implementation, how did you manage the project on a day-to-day basis?

Prompts: Did the team members require your advice and guidance in executing the project work? If so, how did you provide advice and guidance?
Did you monitor project progress? If so, how did you monitor progress?
Were there any short-term objectives established? If so, who established these? How did you circulate these objectives within the team? How did you ensure that these objectives were met?

2.4.7 Over implementation, what was the most important issue that needed to be addressed?

Prompts: Who identified this issue? How was the issue handled? Who decided upon this issue? Was it difficult to reach a decision on this issue?
Give me an example for an issue of lesser importance: Who identified this issue? How was this issue handled? Who decided upon this issue?
Over implementation, was senior management involved in decision-making? If so, in what way and for what decision?

2.4.8 Over implementation, did the team conduct team meetings?

Prompts: If so, were these meetings spontaneous or scheduled?
Give me an example for a spontaneous meeting, for a scheduled meeting?
Through what communication modes were the scheduled meetings conducted?
Who participated in these meetings? – The entire team?
How often did the team conduct scheduled meetings?
How far in advance was a meeting scheduled? Who scheduled it?
How were the team members informed about the schedule?
Was there an agenda for scheduled meetings? Give me an example for such an agenda. Who drafted it? How was it circulated throughout the team?

2.4.9 Over implementation, was there any source of conflict within the team?

Prompts: How would you describe the quality of communication within the team?
Did the team members have steady access to all information relevant to their work?
Did each team member know the responsibilities of the other members?
Were the team members able to contact and communicate with other members without delays and errors?
Did the team members get adequate feedback from other members in a timely manner?
Were the team members informed about the work progress of other members?

(offer break here)

3. THE LOWER PERFORMING TEAM

Now, I would like you to select one NSD project where team performance was less satisfactory. Please make sure that the project had only met two or less out of these four criteria.

1. **Project was completed on time.**
2. **Project was completed on budget.**
3. **You were personally satisfied with the project.**
4. **The team was collectively satisfied with the project.**

May I remind you again that the project should have been fully completed or terminated within the last three years.

I would like you to answer all the following questions with regards to this specific project.

3. 1 Project Background/Low

3.1.1 Please tell me now about the team, what was developed and what was your involvement?

Prompts: Would you describe this development a product development or a service development?
What was the degree of newness of this development in the company context? The industry context?
From where originated the idea for this development?

3.1.2 How long did it take to complete the project?

Prompts: When exactly did the project start? When did it end?

3.2 Initiation Phase/Low

In the following I would like to hear about each of the three development phases. Let's start again with the initiation phase.

3.2.1 Please tell me about the size of the team, the team members involved, and the functions involved during the initiation phase?

Prompts: What kind of experts, from what departments, for which functions? Any members external to the organization (e.g. consultants, clients)?

What was the geographic location of the team members?

3.2.2 Had these team members worked together before?

Prompts: Had every team member the same degree of experience with this kind of project?
Did every team member know the other members personally?
Did you, the team leader, know every team member personally?
Who selected the team members? On what basis were the team members selected?

3.2.3 What was the overall objective of the initiation phase? Did the team meet this objective?

Prompts: What other objectives were met? What objectives were not met? Who established these objectives? Who monitored the attainment of these objectives? – And how?

3.2.4 Please describe to me the major work tasks over initiation?

Prompts: How familiar was the team with these tasks?
How would you describe the quality of task execution?
What was the biggest challenge for you at this phase? For the team?
Was the work interrupted by unexpected problems at this phase?
How intensely did the team interact at this phase?
To what extent did the team require assistance from third parties?

3.2.5 On a day-to-day basis, how did you interact with the other team members?

Prompts: Through what kind of communication modes did you typically interact with the team members?
How often did you interact with team members per day? How much time per day did you spent on interacting with team members?
Did you interact with some members more often than with others?
Did you send/receive memos and/or circulars to interact with team members? If so, what was the content of these? How often did you send/receive these?

3.2.6 Over initiation, how did you manage the project on a day-to-day basis?

Prompts: Did the team members require your advice and guidance in executing the project work? If so, how did you provide advice and guidance?
Did you monitor project progress? If so, how did you monitor progress?
Were there any short-term objectives established? If so, who established these? How did you circulate these objectives within the team? How did you ensure that these objectives were met?

3.2.7 Over initiation, what was the most important issue that needed to be addressed?

Prompts: Who identified this issue? How was the issue handled? Who decided upon this issue? Was it difficult to reach a decision on this issue?
Give me an example for an issue of lesser importance: Who identified this issue? How was this issue handled? Who decided upon this issue?
Over initiation, was senior management involved in decision-making? If so, in what way and for what decision?

3.2.8 Over initiation, did the team conduct team meetings?

Prompts: If so, were these meetings spontaneous or scheduled?
Give me an example for a spontaneous meeting, for a scheduled meeting?

Through what communication modes were the scheduled meetings conducted?
Who participated in these meetings? – The entire team?
How often did the team conduct scheduled meetings?
How far in advance was a meeting scheduled? Who scheduled it?
How were the team members informed about the schedule?
Was there an agenda for scheduled meetings? Give me an example for such an agenda. Who drafted it? How was it circulated throughout the team?

3.2.9 Over initiation, was there any source of conflict within the team?

Prompts: How would you describe the quality of communication within the team?
Did the team members have steady access to all information relevant to their work?
Did each team member know the responsibilities of the other members?
Were the team members able to contact and communicate with other members without delays and errors?
Did the team members get adequate feedback from other members in a timely manner?
Were the team members informed about the work progress of other members?

3.3 Development Phase/Low

Now let's move on with the development process and talk about the phase of the actual service development.

3.3.1 Compared to the previous phase, what had changed in regards to the size of the team, the team members involved, and the functions involved?

Prompts: What kind of experts, from what departments, for which functions? Any members external to the organization (e.g. consultants, clients)?
What was the geographic location of the team members?

3.3.2 (if applicable) Had these team members worked together before?

Prompts: Had every team member the same degree of experience with this kind of project?
Did every team member know the other members personally?
Did you, the team leader, know every team member personally?
Who selected the team members? On what basis were the team members selected?

3.3.3 What was the overall objective of the development phase? Did the team meet this objective?

Prompts: What other objectives were met? What objectives were not met? Who established these objectives? Who monitored the attainment of these objectives? – And how?

3.3.4 Please describe to me the major work tasks over development?

Prompts: How familiar was the team with these tasks?
How would you describe the quality of task execution?
What was the biggest challenge for you at this phase? For the team?
Was the work interrupted by unexpected problems at this phase?
How intensely did the team interact at this phase?
To what extent did the team require assistance from third parties?

3.3.5 On a day-to-day basis, how did you interact with the other team members?

Prompts: Through what kind of communication modes did you interact with the team members?
How often did you interact with team members per day? How much time per day did you spent on interacting with team members?
Did you interact with some members more often than with others?
Did you send/receive memos and/or circulars to interact with team members? If so, what was the content of these? How often did you send/receive these?

3.3.6 Over development, how did you manage the project on a day-to-day basis?

Prompts: Did the team members require your advice and guidance in executing the project work? If so, how did you provide advice and guidance?
Did you monitor project progress? If so, how did you monitor progress?
Were there any short-term objectives established? If so, who established these? How did you circulate these objectives within the team? How did you ensure that these objectives were met?

3.3.7 Over development, what was the most important issue that needed to be addressed?

Prompts: Who identified this issue? How was the issue handled? Who decided upon this issue? Was it difficult to reach a decision on this issue?
Give me an example for an issue of lesser importance: Who identified this issue? How was this issue handled? Who decided upon this issue?
Over development, was senior management involved in decision-making? If so, in what way and for what decision?

3.3.8 Over development, did the team conduct team meetings?

Prompts: If so, were these meetings spontaneous or scheduled?
Give me an example for a spontaneous meeting, for a scheduled meeting?
Through what communication modes were the scheduled meetings conducted?
Who participated in these meetings? – The entire team?
How often did the team conduct scheduled meetings?
How far in advance was a meeting scheduled? Who scheduled it?
How were the team members informed about the schedule?
Was there an agenda for scheduled meetings? Give me an example for such an agenda. Who drafted it? How was it circulated throughout the team?

3.3.9 Over development, was there any source of conflict within the team?

Prompts: How would you describe the quality of communication within the team?
Did the team members have steady access to all information relevant to their work?
Did each team member know the responsibilities of the other members?
Were the team members able to contact and communicate with other members without delays and errors?
Did the team members get adequate feedback from other members in a timely manner?
Were the team members informed about the work progress of other members?

3.4 Implementation Phase/Low

Now let's conclude the development process and talk about the final phase, the implementation phase.

3.4.1 Compared to the previous phase, what had changed in regards to the size of the team, the team members involved, and the functions involved?

Prompts: What kind of experts, from what departments, for which functions? Any members external to the organization (e.g. consultants, clients)?
What was the geographic location of the team members?

3.4.2 (if applicable) Had these team members worked together before?

Prompts: Had every team member the same degree of experience with this kind of project?
Did every team member know the other members personally?
Did you, the team leader, know every team member personally?
Who selected the team members? On what basis were the team members selected?

3.4.3 What was the overall objective of the implementation phase? Did the team meet this objective?

Prompts: What other objectives were met? What objectives were not met? Who established these objectives? Who monitored the attainment of these objectives? – And how?

3.4.4 Please describe to me the major work tasks over implementation?

Prompts: How familiar was the team with these tasks?
How would you describe the quality of task execution?
What was the biggest challenge for you at this phase? For the team?
Was the work interrupted by unexpected problems at this phase?
How intensely did the team interact at this phase?
To what extent did the team require assistance from third parties?

3.4.5 On a day-to-day basis, how did you interact with the other team members?

Prompts: Through what kind of communication modes did you interact with the team members?
How often did you interact with team members per day? How much time per day did you spent on interacting with team members?
Did you interact with some members more often than with others?
Did you send/receive memos and/or circulars to interact with team members? If so, what was the content of these? How often did you send/receive these?

3.4.6 Over implementation, how did you manage the project on a day-to-day basis?

Prompts: Did the team members require your advice and guidance in executing the project work? If so, how did you provide advice and guidance?
Did you monitor project progress? If so, how did you monitor progress?
Were there any short-term objectives established? If so, who established these? How did you circulate these objectives within the team? How did you ensure that these objectives were met?

3.4.7 Over implementation, what was the most important issue that needed to be addressed?

Prompts: Who identified this issue? How was the issue handled? Who decided upon this issue? Was it difficult to reach a decision on this issue?
Give me an example for an issue of lesser importance: Who identified this issue? How was this issue handled? Who decided upon this issue?
Over implementation, was senior management involved in decision-making? If so, in what way and for what decision?

3.4.8 Over implementation, did the team conduct team meetings?

Prompts: If so, were these meetings spontaneous or scheduled?
Give me an example for a spontaneous meeting, for a scheduled meeting?
Through what communication modes were the scheduled meetings conducted?
Who participated in these meetings? – The entire team?
How often did the team conduct scheduled meetings?
How far in advance was a meeting scheduled? Who scheduled it?
How were the team members informed about the schedule?
Was there an agenda for scheduled meetings? Give me an example for such an agenda. Who drafted it? How was it circulated throughout the team?

3.4.9 Over implementation, was there any source of conflict within the team?

Prompts: How would you describe the quality of communication within the team?
Did the team members have steady access to all information relevant to their work?
Did each team member know the responsibilities of the other members?
Were the team members able to contact and communicate with other members without delays and errors?
Did the team members get adequate feedback from other members in a timely manner?
Were the team members informed about the work progress of other members?

4. ADDITIONAL INTERNAL FACTORS

Lastly I have some questions in regards to the whole organization.

4.1 What is the overall organizational approach towards new product/new service development?

Prompts: Is there an overall strategy that defines the sort of new products to be developed?
How does the business nurture innovation?
What sort of impact, if any, has this approach on team performance?
If there is an impact, how did it impact on the high performing team? How did it impact on the low performing team?

4.2 Is there a shared belief in the need to pursue product development for the purpose of growing the organizations? Does senior management share this believe and does it actively foster product development?

Prompts: What sort of impact, if any, has this support on team performance?
If there is an impact, how did it impact on the high performing team? How did it impact on the low performing team?

4.3 Last Question: Looking at the external environment of your business, how important is new service development and innovation in your field? For your customers? For the industry as a whole?

Prompts: Is your organization/business considered as an innovator by industry peers?
Which other company in the relevant field would you consider particularly innovative?

Thanks a lot for your time. The input you have given me is very interesting, indeed.

Interview Guide: Team Member

Before we start let me briefly remind you of the purpose of this study. At City University Business School we are currently managing a large research project trying to uncover the primary drivers for successful new service development. This part of the study investigates ways in which virtual development teams are deployed in new product and service development (NPD/NSD) projects in financial services businesses.

More specifically, we are interested in your experience with virtual teamwork in new service development.

I would like to structure the interview the following way (*be intentionally vague*):

First, I would like you to tell me a bit about your position and your work area.

Second, I would like you to talk about a specific development project and your involvement with this project.

Lastly, I have some questions concerning the overall organization.

I have to stress at this point that we will treat all information with the utmost confidentiality. Also, we will not mention your name or the name of the company in case of publication.

1. INTRODUCTION

1.1 So tell me a bit about yourself, how long have you been working for your company, what are your responsibilities?

Prompts: Who do you report to?
Where did you work before?
What is your exact job title?
If applicable: You are in charge of how many people?

1.2 When you think about your recent work, did you somehow participate in the development of new services?

Prompts: What kinds of services or products do you develop?
Are these developments executed in teams and projects?
In how many development projects are you usually involved?
In how many development projects are you currently involved?

Before we move on, as you know I previously had the pleasure of interviewing Mr/Ms XY. He/she provided me with very interesting insights concerning project A. You have been very closely involved in this project and I would like you to tell me more about it.

So, please answer all the following questions with regards to project A.

2. THE PROJECT

2. 1 Project Background

2.1.1 So, tell me about the project, what was developed and what was your involvement?

Prompts: Would you describe this development a product development or a service development?
What was the degree of newness of this development in the company context? The industry context?
From where originated the idea for this development?

2.1.2 How long did it take to complete the project?

Prompts: When exactly did the project start? When did it end?

2.1.3 Please address the following four questions regarding project performance:

1. Was the project completed on time?
2. Was the project completed on budget?
3. Were you personally satisfied with the project?
4. Was the team collectively satisfied with the project?

I brought with me an illustration that shows three broadly defined development phases (*show illustration and leave it in front of respondent*): Initiation Phase, Development Phase, and Implementation Phase. Does this make sense to you? Are these three project phases applicable to the project we are talking about? If not, please make amendments.

2.2 Initiation Phase

In the following I would like you to talk about each of these three development phases (*point to illustration*) in more detail. Let's talk first about the initiation phase.

2.2.1 Please tell me about the size of the team, the team members involved, and the functions involved during the initiation phase?

Prompts: What kind of experts, from what departments, for which functions? Any members external to the organization (e.g. consultants, clients)?
What was the geographic location of the team members?

2.2.2 Had these team members worked together before?

Prompts: Had every team member the same degree of experience with this kind of project?
Did every team member know the other members personally?
Did you know every team member personally?
Who selected the team members? On what basis were the team members selected?

2.2.3 What was the overall objective of the initiation phase? Did the team meet this objective?

Prompts: What other objectives were met? What objectives were not met? Who established these objectives? Who monitored the attainment of these objectives? – And how?

2.2.4 Please describe to me the major work tasks over initiation?

Prompts: How familiar was the team with these tasks?
How would you describe the quality of task execution?
What was the biggest challenge for you at this phase? For the team?
Was the work interrupted by unexpected problems at this phase?
How intensely did the team interact at this phase?
To what extent did the team require assistance from third parties?

2.2.5 On a day-to-day basis, how did you interact with the other team members?

Prompts: Through what kind of communication modes did you typically interact with the team members?
How often did you interact with team members per day? How much time per day did you spent on interacting with team members?
Did you interact with some members more often than with others?
Did you send/receive memos and/or circulars to interact with team members? If so, what was the content of these? How often did you send/receive these?

2.2.6 Over initiation, what was the role of the team manager on a day-to-day basis?

Prompts: Did you request the team manager's advice in executing the project work? If so, how did he/she provide advice?
Who monitored project progress? How was progress monitored?
Were there any short-term objectives established? If so, who established these? How were these circulated within the team? Who monitored the attainment of these objectives and how?

2.2.7 Over initiation, what was the most important issue that needed to be addressed?

Prompts: Who identified this issue? How was the issue handled? Who decided upon this issue? Was it difficult to reach a decision on this issue?
Give me an example for an issue of lesser importance: Who identified this issue? How was this issue handled? Who decided upon this issue?
Over initiation, was the team manager involved in decision-making? If so, in what way and for what decision?

2.2.8 Over initiation, did the team conduct team meetings?

Prompts: If so, were these meetings spontaneous or scheduled?
Give me an example for a spontaneous meeting, for a scheduled meeting?
Through what communication modes were the scheduled meetings conducted?
Who participated in these meetings? – The entire team?
How often did the team conduct scheduled meetings?
How far in advance was a meeting scheduled? Who scheduled it?
How were the team members informed about the schedule?
Was there an agenda for scheduled meetings? Give me an example for such an agenda. Who drafted it? How was it circulated throughout the team?

2.2.9 Over initiation, was there any source of conflict within the team?

Prompts: How would you describe the quality of communication within the team?
Did the team members have steady access to all information relevant to their work?
Did each team member know the responsibilities of the other members?
Were the team members able to contact and communicate with other members without delays and errors?
Did the team members get adequate feedback from other members in a timely manner?
Were the team members informed about the work progress of other members?

2.3 Development Phase

Now let's move on with the development process and talk about the phase of the actual service development.

2.3.1 Compared to the previous phase, what had changed in regards to the size of the team, the team members involved, and the functions involved?

Prompts: What kind of experts, from what departments, for which functions? Any members external to the organization (e.g. consultants, clients)?
What was the geographic location of the team members?

2.3.2 (if applicable) Had these team members worked together before?

Prompts: Had every team member the same degree of experience with this kind of project?
Did every team member know the other members personally?
Did you know every team member personally?
Who selected the team members? On what basis were the team members selected?

2.3.3 What was the overall objective of the development phase? Did the team meet this objective?

Prompts: What other objectives were met? What objectives were not met? Who established these objectives? Who monitored the attainment of these objectives? – And how?

2.3.4 Please describe to me the major work tasks over development?

Prompts: How familiar was the team with these tasks?
How would you describe the quality of task execution?
What was the biggest challenge for you at this phase? For the team?
Was the work interrupted by unexpected problems at this phase?
How intensely did the team interact at this phase?
To what extent did the team require assistance from third parties?

2.3.5 On a day-to-day basis, how did you interact with the other team members?

Prompts: Through what kind of communication modes did you interact with the team members?
How often did you interact with team members per day? How much time per day did you spent on interacting with team members?
Did you interact with some members more often than with others?
Did you send/receive memos and/or circulars to interact with team members? If so, what was the content of these? How often did you send/receive these?

2.3.6 Over development, what was the role of the team manager on a day-to-day basis?

Prompts: Did you request the team manager's advice in executing the project work? If so, how did he/she provide advice?
Who monitored project progress? How was progress monitored?
Were there any short-term objectives established? If so, who established these? How were these circulated within the team? Who monitored the attainment of these objectives and how?

2.3.7 Over development, what was the most important issue that needed to be addressed?

Prompts: Who identified this issue? How was the issue handled? Who decided upon this issue? Was it difficult to reach a decision on this issue?
Give me an example for an issue of lesser importance: Who identified this issue? How was this issue handled? Who decided upon this issue?
Over development, was the team manager involved in decision-making? If so, in what way and for what decision?

2.3.8 Over development, did the team conduct team meetings?

Prompts: If so, were these meetings spontaneous or scheduled?
Give me an example for a spontaneous meeting, for a scheduled meeting?
Through what communication modes were the scheduled meetings conducted?
Who participated in these meetings? – The entire team?
How often did the team conduct scheduled meetings?
How far in advance was a meeting scheduled? Who scheduled it?
How were the team members informed about the schedule?
Was there an agenda for scheduled meetings? Give me an example for such an agenda. Who drafted it? How was it circulated throughout the team?

2.3.9 Over development, was there any source of conflict within the team?

Prompts: How would you describe the quality of communication within the team?
Did the team members have steady access to all information relevant to their work?
Did each team member know the responsibilities of the other members?
Were the team members able to contact and communicate with other members without delays and errors?
Did the team members get adequate feedback from other members in a timely manner?
Were the team members informed about the work progress of other members?

2.4 Implementation Phase

Now let's conclude the development process and talk about the final phase, the implementation phase.

2.4.1 Compared to the previous phase, what had changed in regards to the size of the team, the team members involved, and the functions involved?

Prompts: What kind of experts, from what departments, for which functions? Any members external to the organization (e.g. consultants, clients)?
What was the geographic location of the team members?

2.4.2 (if applicable) Had these team members worked together before?

Prompts: Had every team member the same degree of experience with this kind of project?
Did every team member know the other members personally?
Did you know every team member personally?
Who selected the team members? On what basis were the team members selected?

2.4.3 What was the overall objective of the implementation phase? Did the team meet this objective?

Prompts: What other objectives were met? What objectives were not met? Who established these objectives? Who monitored the attainment of these objectives? – And how?

2.4.4 Please describe to me the major work tasks over implementation?

Prompts: How familiar was the team with these tasks?
How would you describe the quality of task execution?
What was the biggest challenge for you at this phase? For the team?
Was the work interrupted by unexpected problems at this phase?
How intensely did the team interact at this phase?
To what extent did the team require assistance from third parties?

2.4.5 On a day-to-day basis, how did you interact with the other team members?

Prompts: Through what kind of communication modes did you interact with the team members?
How often did you interact with team members per day? How much time per day did you spent on interacting with team members?
Did you interact with some members more often than with others?
Did you send/receive memos and/or circulars? If so, what was the content of these? How often did you send/receive these?

2.4.6 Over implementation, what was the role of the team manager on a day-to-day basis?

Prompts: Did you request the team manager's advice in executing the project work? If so, how did he/she provide advice?
Who monitored project progress? How was progress monitored?
Were there any short-term objectives established? If so, who established these? How were these circulated within the team? Who monitored the attainment of these objectives and how?

2.4.7 Over implementation, what was the most important issue that needed to be addressed?

Prompts: Who identified this issue? How was the issue handled? Who decided upon this issue? Was it difficult to reach a decision on this issue?
Give me an example for an issue of lesser importance: Who identified this issue? How was this issue handled? Who decided upon this issue?
Over implementation, was the team manager involved in decision-making? If so, in what way and for what decision?

2.4.8 Over implementation, did the team conduct team meetings?

Prompts: If so, were these meetings spontaneous or scheduled?
Give me an example for a spontaneous meeting, for a scheduled meeting?
Through what communication modes were the scheduled meetings conducted?
Who participated in these meetings? – The entire team?
How often did the team conduct scheduled meetings?
How far in advance was a meeting scheduled? Who scheduled it?
How were the team members informed about the schedule?
Was there an agenda for scheduled meetings? Give me an example for such an agenda. Who drafted it? How was it circulated throughout the team?

2.4.9 Over implementation, was there any source of conflict within the team?

Prompts: How would you describe the quality of communication within the team?
Did the team members have steady access to all information relevant to their work?
Did each team member know the responsibilities of the other members?
Were the team members able to contact and communicate with other members without delays and errors?
Did the team members get adequate feedback from other members in a timely manner?
Were the team members informed about the work progress of other members?

3. ADDITIONAL INTERNAL FACTORS

Lastly I have some questions in regards to the whole organization.

3.1 What is the overall organizational approach towards new product/new service development?

Prompts: Is there an overall strategy that defines the sort of new products to be developed?
How does the business nurture innovation?
What sort of impact, if any, has this approach on team performance?

3.2 Is there a shared belief in the need to pursue product development for the purpose of growing the organizations? Does senior management share this believe and does it actively foster product development?

Prompts: What sort of impact, if any, has this support on team performance?

3.3 Last Question: Looking at the external environment of your business, how important is new service development and innovation in your field? For your customers? For the industry as a whole?

Prompts: Is your organization/business considered as an innovator by industry peers?
Which other company in the relevant field would you consider particularly innovative?

Thanks a lot for your time. The input you have given me is very interesting, indeed.

APPENDIX IV.

Data Coding Trees

Table 1: Data Coding Tree; Primary Independent Variable, Managerial Structure

PRIMARY INDEPENDENT VARIABLE			
1. Managerial Structure	Team	Project Phase	Structural Dimensions
	1.1 Higher Performing Team	1.1.1 Initiation Phase	1.1.1.1 Formalization
			1.1.1.2 Centralization
			1.1.1.3 Standardization
			1.1.1.4 Other
		1.1.2 Development Phase	1.1.2.1 Formalization
			1.1.2.2 Centralization
			1.1.2.3 Standardization
			1.1.2.4 Other
		1.1.3 Implementation Phase	1.1.3.1 Formalization
			1.1.3.2 Centralization
			1.1.3.3 Standardization
			1.1.3.4 Other
	1.2 Lower Performing Team	1.2.1 Initiation Phase	1.2.1.1 Formalization
			1.2.1.2 Centralization
			1.2.1.3 Standardization
			1.2.1.4 Other
		1.2.2 Development Phase	1.2.2.1 Formalization
			1.2.2.2 Centralization
			1.2.2.3 Standardization
			1.2.2.4 Other
		1.2.3 Implementation Phase	1.2.3.1 Formalization
			1.2.3.2 Centralization
			1.2.3.3 Standardization
			1.2.3.4 Other

Table 2: Data Coding Tree; Dependent Variable, Team Performance

DEPENDENT VARIABLE		
2.Team Performance	Team	Performance Dimensions
	2.1 Higher Performing Team	2.1.1 Project completed on time
		2.1.2 Project completed on budget
		2.1.3 Attained individual satisfaction
		2.1.4 Attained collective satisfaction
	2.2 Lower Performing Team	2.2.1 Project completed on time
		2.2.2 Project completed on budget
		2.2.3 Attained individual satisfaction
		2.2.4 Attained collective satisfaction

Table 3: Data Coding Tree; Mediating Variable, Teamwork Effectiveness

MEIATING VARIABLE			
3. Teamwork effectiveness	Team	Project Phase	Teamwork Dimensions
	3.1 Higher Performing Team	3.1.1 Initiation Phase	3.1.1.1 Inter-team Communication
			3.1.1.2 Information Distribution
			3.1.1.3 Task Execution
			3.1.1.4 Other
		3.1.2 Development Phase	3.1.2.1 Inter-team Communication
			3.1.2.2 Information Distribution
			3.1.2.3 Task Execution
			3.1.2.4 Other
		3.1.3 Implementation Phase	3.1.3.1 Inter-team Communication
			3.1.3.2 Information Distribution
			3.1.3.3 Task Execution
			3.1.3.4 Other
	3.2 Lower Performing Team	3.2.1 Initiation Phase	3.2.1.1 Inter-team Communication
			3.2.1.2 Information Distribution
			3.2.1.3 Task Execution
			3.2.1.4 Other
		3.2.2 Development Phase	3.2.2.1 Inter-team Communication
			3.2.2.2 Information Distribution
			3.2.2.3 Task Execution
			3.2.2.4 Other
		3.2.3 Implementation Phase	3.2.3.1 Inter-team Communication
			3.2.3.2 Information Distribution
			3.2.3.3 Task Execution
			3.2.3.4 Other

Table 4 Data Coding Tree; Moderating Contingency Variable, Task Complexity

MODERATING CONTINGENCY VARIABLE			
4. Task Complexity	Team	Project Phase	Task Complexity Dimensions
	4.1 Higher Performing Team	4.1.1 Initiation Phase	4.1.1.1 Task predictability
			4.1.1.2 Problem analyzability
			4.1.1.3 Team Interdependence
			4.1.1.4 Other
		4.1.2 Development Phase	4.1.2.1 Task predictability
			4.1.2.2 Problem analyzability
			4.1.2.3 Team Interdependence
			4.1.2.4 Other
		4.1.3 Implementation Phase	4.1.3.1 Task predictability
			4.1.3.2 Problem analyzability
			4.1.3.3 Team Interdependence
			4.1.3.4 Other
	4.2 Lower Performing Team	4.2.1 Initiation Phase	4.2.1.1 Task predictability
			4.2.1.2 Problem analyzability
			4.2.1.3 Team Interdependence
			4.2.1.4 Other
		4.2.2 Development Phase	4.2.2.1 Task predictability
			4.2.2.2 Problem analyzability
			4.2.2.3 Team Interdependence
			4.2.2.4 Other
		4.2.3 Implementation Phase	4.2.3.1 Task predictability
			4.2.3.2 Problem analyzability
			4.2.3.3 Team Interdependence
			4.2.3.3 Other

Table 5: Data Coding Tree; Secondary Independent Variables, Internal Organization Factors, the 7 Ss

SECONDARY INDEPENDENT VARIABLES			
5. Internal Organizational Variables	Team	Project Phase	Internal Organization Dimensions
	5.1 Higher Performing Team	5.1.1 Initiation Phase	5.1.1.1 Structure 5.1.1.2 Systems 5.1.1.3 Skill 5.1.1.4 Staff 5.1.1.5 Style 5.1.1.6 Strategy 5.1.1.7 Shared Values 5.1.1.8 Other
		5.1.2 Development Phase	5.1.2.1 Structure 5.1.2.2 Systems 5.1.2.3 Skill 5.1.2.4 Staff 5.1.2.5 Style 5.1.2.6 Strategy 5.1.2.7 Shared Values 5.1.2.8 Other
		5.1.3 Implementation Phase	5.1.3.1 Structure 5.1.3.2 Systems 5.1.3.3 Skill 5.1.3.4 Staff 5.1.3.5 Style 5.1.3.6 Strategy 5.1.3.7 Shared Values 5.1.3.8 Other
	5.2 Lower Performing Team	5.2.1 Initiation Phase	5.2.1.1 Structure 5.2.1.2 Systems 5.2.1.3 Skill 5.2.1.4 Staff 5.2.1.5 Style 5.2.1.6 Strategy 5.2.1.7 Shared Values 5.2.1.8 Other
		5.2.2 Development Phase	5.2.2.1 Structure 5.2.2.2 Systems 5.2.2.3 Skill 5.2.2.4 Staff 5.2.2.5 Style 5.2.2.6 Strategy 5.2.2.7 Shared Values 5.2.2.8 Other
		5.2.3 Implementation Phase	5.2.3.1 Structure 5.2.3.2 Systems 5.2.3.3 Skill 5.2.3.4 Staff 5.2.3.5 Style 5.2.3.6 Strategy 5.2.3.7 Shared Values 5.2.3.8 Other

Table 6: Data Coding Tree; Background Information

BACKGROUND INFORMATION		
6. Background Information	Topic Area	Topic details
	6.1.1 Professional Background	
		6.1.1.1 Personal Information
		6.1.1.2 Departmental Information
		6.1.1.3 Organizational Information
	6.1.2 Type and Nature of the NSD Project	
		6.1.2.1 Project with High Team Performance
		6.1.2.2 Project with Low Team Performance

APPENDIX V.

Data Analysis

1. Introduction

The following section provides the single-case data analysis. Each of the eight cases is analyzed and emerging data patterns are subjected to the formulated propositions.

Following the suggestions of Eisenhardt (1989) this analysis puts great emphasis on the two key characteristics of solid case-study research: methodological rigor and storytelling. To account for methodological rigor, the method follows a systematic process of conducting case research. Within this systematic framework, the research employs a multiple case study approach, a purposive sampling procedure, and multiple data collection methods (Eisenhardt 1989; Leonrad-Barton, 1990; Yin, 1996; Perry, 1998). As discussed in Chapter 4 and Chapter 5, the research question was identified, propositions formulated, and predefined instruments such as interview schedules and interview guides developed. Further, theoretical sampling and controls were considered. For data collection a total of eight cases were conducted based on 32 in-depth interviews. For data analysis, verbatim interview transcripts were created, inter-coder reliability tests deployed and qualitative data analysis software utilized. In particular, the software package NUDIST (2002) proved highly valuable in organizing data and in tracing emerging patterns within and across cases.

To warrant the comparability of cases, it was ensured that the eight cases display a certain degree of homogeneity. That is, this study followed the same sampling procedure for each case and the same process of data collection. Furthermore, research was conducted in the same industry sector and the same country. All selected firms are large multinational organizations that have a history of continuous incremental innovation. The team manager was always the first to be interviewed in each selected firm. He/She was requested to select two project teams that could meet three criteria: (a) the projects had been fully completed or terminated within the past three years, (b) the teams had been operating within a virtual context, and (c) one project team had been higher performing and one project team lower performing. Further, to warrant cross-case cohesiveness absolute measures were used to examine team performance, teamwork effectiveness, and task complexity. That is, precise criteria were prescribed through which the dependent, moderating and mediating variables had to be assessed (Miles and Huberman, 1994). However, to preserve the exploratory and inductive nature of this research, the independent variables

(formalization, centralization, standardization) were explored through relative measures, which were more loosely defined (Miles and Huberman, 1994). Data for all variables were then collected through in-depth interviews as well as documentation.

Despite the efforts described above, there are obviously limits to cross-case homogeneity. For example, the type of service developed varied widely across projects and included a broad spectrum of corporate banking services. Likewise, the teams' physical configurations such as team size fluctuated not only across but also within projects. For example, a certain project team comprised ten members during the initiation phase, more than one hundred members during the development phase, and about thirty members over implementation. However, such variability was not only expected, but also anticipated to gather a richer set of ideas and insights.

Eisenhardt (1989) further asserts that solid case-study research requires a story to be told. To account for storytelling 'the story' of each individual case is reported, referring to the background of the company, the context of the project, the nature of development, and the role of the team manager as well as the team members. These case reports are presented in a descriptive, journalistic writing style and are included in Appendix VI.

As mentioned above, the present section provides the single-case data analysis and analyzes the data for the higher and the lower performing team in each of the eight cases. This data analysis represents the last stage of the five stage single-case analysis. As explained in Chapter 5, the first stage treated each utterance in the verbatim interview transcript in its own terms, ignoring its relationship to other aspects of the text. As such, the treatment of each useful utterance created an observation (McCracken, 1999). The second stage concentrated on these observations and developed them, first by themselves, second according to the previous literature review and the formulated propositions. Also, information from the collected documents was incorporated. The third stage examined the interconnection of the second-level observation, resorting once again to the previous acts of literature review and propositions. The focus of attention now shifted away from the transcript and towards the observations themselves. At this stage summaries of the key themes were created for each interviewee that included quotations from the interview transcripts, as

well as memos created by the researcher that reflected some data interpretation and analysis. The fourth stage took the observations generated at previous levels and subjected them, in this collective form, to collective scrutiny. The object of analysis was the determination of patterns of inter-theme, consistency and contradiction (Miles and Huberman, 1994; Yin, 1996; McCracken, 1999). The fifth and final analysis stage now takes the identified patterns and themes, as they appeared in the interviews and the collected documents, and subjects them to a final process of general analysis.

Since no scales were used to measure the variables in degrees, the variables are examined through emerging data patterns in the higher and lower performing project teams, and, subsequently, these patterns are compared within and across project teams. As such, the final process of general analysis adheres to the following analysis template (Figure 1):

(A) First, the overall team performance of the higher and the lower performing team is examined, concentrating on the attainment of performance objectives.

(B) Second, focusing on the higher performing team the main variables are examined in each of the three project phases: initiation, development, and implementation. That is, emerging data patterns are assessed with regard to task complexity, formalization, centralization, standardization, and teamwork effectiveness in each project phase. Also, potential associations between these variables are examined in each project phase. Subsequently, this procedure is repeated for the lower performing team.

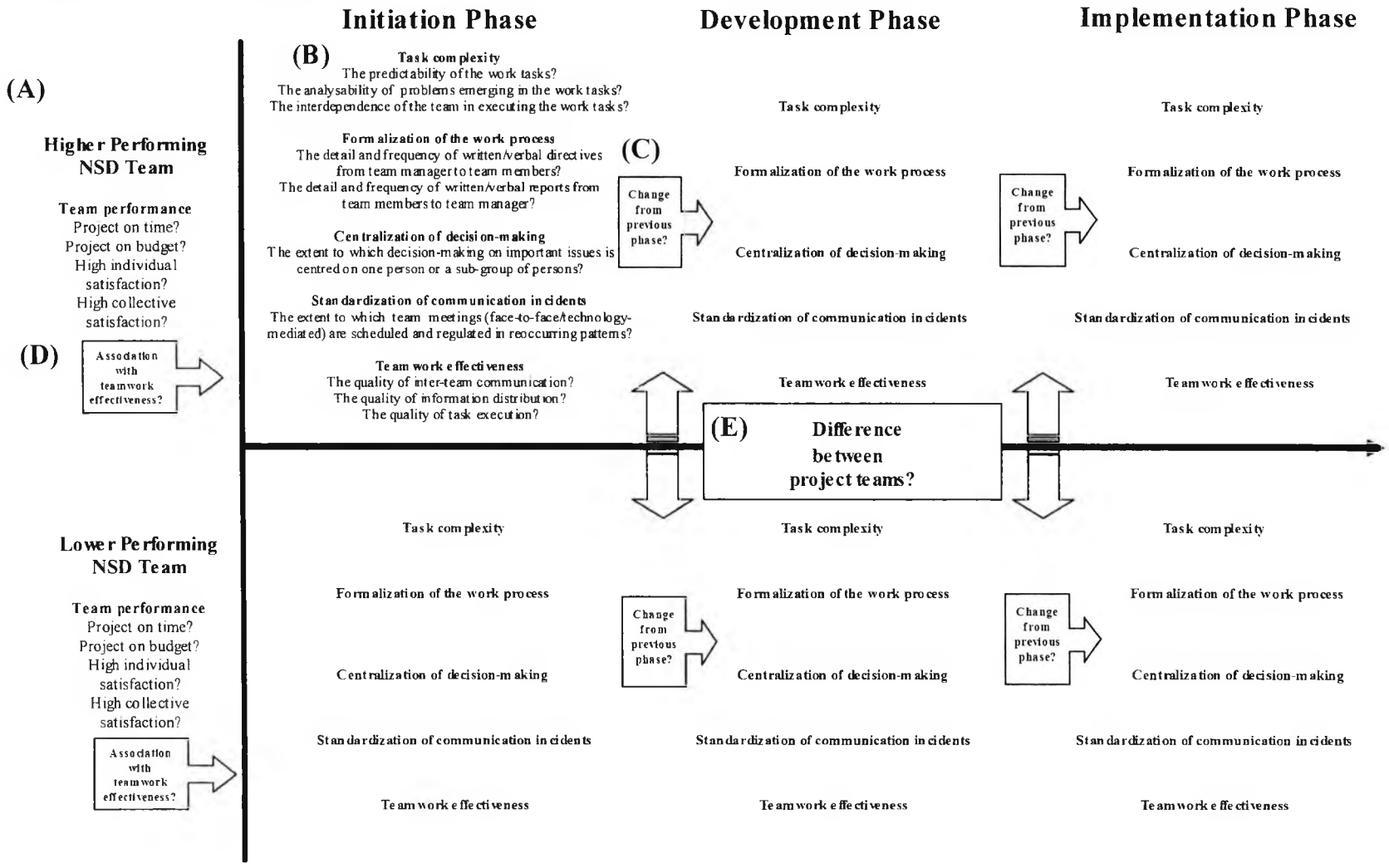
(C) Third, emerging data patterns in each project team are subjected to the propositions. Again, focusing on the higher performing team potential fluctuations (*higher/lower*) in the data patterns of variables are examined. In particular, it is assessed whether these data patterns change across project phases. For example, a cross-phase analysis may show that over the development phase the data pattern display *higher* formalization and *higher* complexity but *lower* teamwork effectiveness *in comparison with* the data patterns observed over the initiation phase and the implementation phase. These emerging data patterns are then subjected to the propositions, carefully evaluating whether the data patterns

strengthen or weaken a proposition or whether no inference regarding that proposition can be made. Subsequently, this procedure is repeated for the lower performing team.

(D) Fourth, again focusing on the higher performing team the association between teamwork effectiveness and team performance is examined. Also, additional internal organizational factors that may have emerged over data analysis are identified and their associations with the main variables are explored (not shown in Figure 1). Subsequently, this procedure is repeated for the lower performing team.

(E) Last, the overall level *(high/moderate/low)* of formalization, centralization, and standardization is determined in both the higher and lower performing team. This is done through data pattern comparison within a case and across cases. That is, in a first step the data patterns of the higher performing team are compared with the data patterns of the lower performing team. In a second step, the data patterns of both teams are compared with the data patterns of all other project teams that make up the sample. For example, if project team A of Case 1 displays the pattern of lowest formalization within the sample while project team B of Case 7 displays the highest, all other 14 project teams are placed along a continuum ranging from project team A (lowest) to project team B (highest).

Figure 1: Single-case analysis template



Further, to ensure a coherent process of data analysis the following analysis rules apply:

(1) When the data pattern of one project phase strengthens a proposition, while the data pattern of another project phase weakens that proposition, no inference concerning that proposition is possible.

(2) When the pattern of formalization or centralization, or standardization remains unaltered throughout the entire development process (no fluctuations), despite fluctuations in task complexity, the propositions concerning that variable are weakened.

(3) When the pattern of teamwork effectiveness in a project phase is neither high nor low but moderate no inference concerning the propositions for this particular project phase is possible.

(4) When the pattern of task complexity remains unaltered throughout the entire development process (continuously high or low), inferences concerning the propositions are only possible with regard to the observed level of complexity.

(5) When a project involves only one project phase (e.g. project terminated over initiation) inferences concerning the propositions are only possible with regard to the data pattern observed in the one project phase.

Having discussed the analysis template and the analysis rules the rest of this section provides the single-case data analysis. While great care was taken to warrant methodological rigor it is maintained that qualitative case-study research always is descriptive and exploratory in nature. Therefore, the following analysis should be considered tentative.

2. Data Analysis
2.1 Case 1: Goldman Sachs

Goldman Sachs, General Industrial Group[1]

Interviewees:
Managing Director (M1)
General Industrial Group, London
(Team Manager)

Associate (A1)
General Industrial Group, London

Associate (A2)
General Industrial Group, London

Managing Director (M2)
Goldman Sachs Sweden, (interview held in London)

Documentation: Communication protocols, project proposals, other

Observation: observed face-to-face meetings between Goldman Sachs and client

Higher performing team *(informants M1 A1 M2)*

Lower performing team *(informants M1 A2 M2)*

2.1.1 Team performance

The case data indicate the following pattern regarding overall team performance:

Higher Performing Team: project on time, project on budget, high individual satisfaction with project, high collective satisfaction with project (*stated by M1, confirmed by A1 M2)*

Lower Performing Team: project on time, project over budget, low individual satisfaction with project, low collective satisfaction with project (*stated by M1, confirmed by A2 M2)*

[1] For in-depth case description please refer to Appendix VI, Case 1

2.1.2 Teamwork effectiveness

The case data indicate the following pattern regarding teamwork effectiveness:

Table 1: Case 1; Teamwork effectiveness in higher performing team

	Quality of Inter-team Communication	Quality of Information Distribution	Quality of Task Execution	**Overall Teamwork Effectiveness**
Initiation Phase	High *M1 A1 M2*	High *M1 A1 M2*	Moderate *M1 A1 M2*	**High**
Development Phase	High *M1 A1 M2*	Moderate *M1 A1 M2*	High *M1 A1 M2*	**High**
Implementation Phase	High *M1 A1 M2*	High *M1 A1 M2*	Moderate *M1 A1 M2*	**High**

Overall, the higher performing team yielded high teamwork effectiveness throughout project execution (Table 1).

Table 2: Case 1; Teamwork effectiveness in lower performing team

	Quality of Inter-team Communication	Quality of Information Distribution	Quality of Task Execution	**Overall Teamwork Effectiveness**
Initiation Phase	High *M1 A2 M2*	Moderate *M1 A2 M2*	Moderate *M1 A2 M2*	**Moderate**
Development Phase	Low *M1 A2 M2*	Low *M1 A2 M2*	Low *M1 A2 M2*	**Low**
Implementation Phase	High *M1 A2 M2*	High *M1 A2 M2*	Moderate *M1 A2 M2*	**High**

Overall, the lower performing team yielded varying teamwork effectiveness throughout project execution, ranging from low to moderate to high (Table 2).

2.1.3 Task complexity

The case data indicate the following pattern regarding task complexity:

Table 3: Case 1; Task complexity in higher performing team

	Task Predictability	Problem Analyzability	Team Interdependence	**Task Complexity**
Initiation Phase	Low *M1 A1*	Low *M1 A1*	High *M1 A1*	**High (1)**
Development Phase	Low *M1 A1 M2*	Low *M1 A1 M2*	High *M1 A1 M2*	**High (2)**
Implementation Phase	High *M1 A1 M2*	High *M1 A1 M2*	Low *M1 A1 M2*	**Low**

Overall, the higher performing team operated under varying task complexity ranging from low to high (Table 3). Respondents provided the following additional information regarding overall work process complexity in the higher performing team:

(1) Initiation Phase: An additional factor mentioned to have increased overall work process complexity was that one team member had just recently joined the firm (*stated by A1*). While this person was a highly skilled individual, it was at first somewhat difficult to integrate him in the work process, which added to complexity (*stated by A1*).

(2) Development Phase: Over development, overall work process complexity was perceived as high but not as high as in the previous phase (*stated by M1 A1*). This was related to the fact that the team was adhering to a precise work schedule, which outlined specific tasks as well as objectives. The work schedule made tasks more predictable and problems more easily analyzable (*stated by A1*). However, the overall work process formed still complex because two key team members located in Frankfurt were unable to personally oversee the development process on location in Sweden due to time constraints (*stated by M1 M2*).

Table 4: Case 1; Task complexity in lower performing team

	Task Predictability	Problem Analyzability	Team Interdependence	**Task Complexity**
Initiation Phase	High *M1 A2*	High *M1 A2*	Moderate *M1 A2*	**Low**
Development Phase	Low *M1 A2*	Low *M1 A2*	High *M1 A2*	**High (1)**
Implementation Phase	Moderate *M1 A2 M2*	High *M1 A2 M2*	Low *M1 A2 M2*	**Low**

Overall, the lower performing team operated under varying task complexity ranging from moderate to high (Table 4). Respondents provided the following additional information regarding overall work process complexity in the lower performing team:

(1) Development Phase: Over development overall work process complexity was perceived as particularly high because of the defection of an external joint-developer (*stated by M1 A2*). Respondents asserted that key personnel had left the joint-developer firm and the replacement was unwilling or unable to progress the project with the skill and drive required (*stated by M1 A2*). As a consequence, the development phase was very troublesome, resulting in a costly development delay (*stated by M1 A2*).

2.1.4 Propositions regarding formalization of the work process

Higher Task Complexity	**Higher performing team**	**Lower performing team**
P1: Lower formalization of the work process is positively associated with teamwork effectiveness.	Differing data pattern	Differing data pattern
Lower Task Complexity	**Higher performing team**	**Lower performing team**
P2: Higher formalization of the work process is positively associated with teamwork effectiveness.	Differing data pattern	No cohesive data pattern

Higher performing team:

Building on his previous experience with virtual teams, the team manger immediately established strong reporting lines and requested every member to submit a brief progress report on a daily basis (*stated by M1 A1).* This report was submitted verbally through a sophisticated voicemail platform. Conversely, the team manager circulated a daily briefing through the voicemail platform, outlining the events of the previous day and detailing the most immediate tasks at hand (*stated by M1 A1).* This pattern of formalization was kept unchanged throughout the initiation and development phase. Formalization was slightly reduced over the implementation phase when the team members had to submit verbal progress reports on a weekly instead of a daily basis (*stated by M1 A1 M2).* Likewise, the team manager reduced his briefing to one per week. These weekly briefings were less rich in detail, merely outlining the overall project progress but no longer detailing specific tasks (*stated by M1 A1).* Overall, the data suggest potential patterns of formalization. However, the data also indicate that formalization was restricted to verbal lines of reporting and directing without the deployment of written directives or reports. In cross-case comparison, the data display a moderate level of formalization.

The emerging data pattern differs from the pattern predicted in Proposition 1 and Proposition 2. The data pattern suggests higher formalization and effective teamwork in project phases of higher complexity. Conversely, the data pattern indicates lower formalization and effective teamwork in project phases of lower complexity (Table5).

Table 5: Case 1; Formalization, complexity and teamwork effectiveness in higher performing team

Initiation Phase	Development Phase	Implementation Phase
Higher Formalization: Verbal reporting from team members to team manager on daily basis, daily briefings from team manager to team members outlining progress, objectives and tasks	*High Formalization:* No change from previous phase	*Lower Formalization:* Reporting lines from team members to team manager on weekly instead of daily basis, weekly briefings from team manager to team members
Higher complexity	Higher task complexity	Lower task complexity
High teamwork effectiveness	High teamwork effectiveness	High teamwork effectiveness

Lower performing team:

Over the initiation phase, formalization was evident in the form of verbal reporting lines from team members to team manager on a daily basis (*stated by M1).* For example, it was mandatory for every team member to submit a verbal progress report to the team's voicemail platform on a daily basis. In addition, each member was obliged to contact the team manager per telephone once a day to receive verbal instructions on task execution (*stated by M1 A2).* The development phase had to be executed in cooperation with an external joint developer. Over development, the team manager abandoned any form or formalization and relied on the external party's self-organization (*stated by M1 A1).* Despite early warning signs suggesting that teamwork with the external party formed strenuous and ineffective, the development continued up to the point of total project breakdown (*stated by M1 A1 M2).* After a major éclat with the client, the team manager reverted to a moderately formalized work process in the form of verbal reporting and verbal directing on a daily basis (*stated by M1 A1).* Overall, the data suggest that a moderately formalized work process contributed to effective teamwork, whereas the absence of formalization was partly responsible for a cooperation deadlock (Table 6). In cross-case comparison, the data display a moderately low level of formalization.

The emerging data pattern differs from the pattern predicted in Proposition 1 and Proposition 2. The data pattern suggests lower formalization and ineffective teamwork in project phases of higher complexity, contradicting Proposition 1. Further, the case data display no cohesive pattern concerning Proposition 2. The data pattern indicates

higher formalization and merely moderately effective teamwork in project phases of lower complexity (Table 6).

Table 6: Case 1; Formalization, complexity and teamwork effectiveness in lower performing team

Initiation Phase	Development Phase	Implementation Phase
Higher Formalization: Strong verbal reporting lines from team members to team manager on daily basis, daily briefings from team manager to team members outlining progress, objectives and tasks	*Lower Formalization:* Occasional reporting from team members to team manager, occasional reporting from external supplier to team members, no direct involvement of team manager	*Higher Formalization:* Strong verbal reporting lines on daily basis re-established, daily briefings from team manager re-established
Lower task complexity	Higher task complexity	Lower task complexity
Moderate teamwork effectiveness	Low teamwork effectiveness	High teamwork effectiveness

2.1.5 Propositions regarding centralization of decision-making

Higher Task Complexity	**Higher performing team**	**Lower performing team**
P3: Lower centralization of decision-making is positively associated with teamwork effectiveness.	Differing data pattern	Differing data pattern
Lower Task Complexity	**Higher performing team**	**Lower performing team**
P4: Higher centralization of decision-making is positively associated with teamwork effectiveness.	Differing data pattern	No cohesive data pattern

Higher performing team

The following data pattern was observed during the complex initiation and the complex development phase: The team manager insisted to be contacted by team members before project-related decisions were made. He would then circulate the decision to the whole team in his next voicemail memo. However, acknowledging that he was "not an expert on everything" he gave every team member great leeway in making decisions regarding minor issues that emerged in his/her area of expertise. Particularly important decisions were addressed in face-to-face meetings, attended by all team members. It was important to the team manager that risky decisions were thoroughly discussed and intelligence was gathered collectively. The final decision, however, rested with the team manager. During the less complex implementation

phase, the team manager transferred the responsibility of decision-making to his colleague in Sweden. After this shift of authority, decision-making rested with the small task force located in Sweden, who adopted a decentralized, consensus-driven approach. The team manager was informed only after decisions had been made and implemented. Overall, the evidence suggests both centralization and decentralization of decision-making in a team characterized by high teamwork effectiveness. Caution is advised, however, with the term 'centralization'. The data does not suggest a centralized decision-making structure to the extent that one authority made the final decision without conferring with other team members. On the contrary, the data indicate that the entire team debated extensively about important and complex decisions before devising several possible solutions. The final decision about what solution to implement was then made in a centralized manner by the team manager. In cross-case comparison, the data display a moderate level of centralization.

The emerging data pattern differs from the pattern predicted in Proposition 3 and Proposition 4. The observed data pattern suggests higher centralization and effective teamwork in project phases of higher complexity. Conversely, the data pattern indicates lower centralization and effective teamwork in project phases of lower complexity (Table 7).

Table 7: Case 1; Centralization, complexity and teamwork effectiveness in higher performing team

Initiation Phase	**Development Phase**	**Implementation Phase**
Higher Centralization: a) Minor decisions left at the discretion of the individual team member, (b) major decisions requiring the approval of the team manager, and (c) particularly important decisions addressed by the whole team, final decision rests with team manager	*Higher Centralization:* No change from previous phase	*Lower Centralization:* Decision-making shifts from team manager to close associate, decision-making structure decentralized and consensus-driven
Higher task complexity	Higher task complexity	Lower task complexity
High teamwork effectiveness	High teamwork effectiveness	High teamwork effectiveness

Lower performing team

Over the initiation phase, decision-making was largely consensus-driven with only one occasion where the team manager proactively made a major decision on his own (*stated by M1 A2). Ov*er development an external developer joined the team. However, there was no structured process of decision-making established and each team member was left in the dark about decisions made and implemented by others (*stated by M1 A2).* Since teamwork proved ineffective, the team manager eventually re-established a structured decision-making process with patterns of moderate centralization (*stated by M1 A2 M2).* These findings argue for a *structured* process of decision-making in order to attain teamwork effectiveness. Also, the data support the notion of a balanced approach towards decision-making to yield effective teamwork. In cross-case comparison, the data display a moderately low level of centralization.

The emerging data pattern differs from the pattern predicted in Proposition 3 and Proposition 4. The data pattern suggests lower centralization and ineffective teamwork in project phases of higher complexity, contradicting Proposition 3. Further, the case data display no cohesive pattern concerning Proposition 4. The data pattern indicates higher centralization and merely moderately effective teamwork in project phases of lower complexity (Table 8).

Table 8: Case 1: Centralization, complexity and teamwork effectiveness in lower performing team

Initiation Phase	**Development Phase**	**Implementation Phase**
Higher Centralization: Decision-making mainly consensus-driven	*Lower Centralization:* No structured decision-making process, decision-making is arbitrary	*Higher Centralization:* Decision-making mainly consensus-driven
Lower task complexity	Higher task complexity	Lower task complexity
Moderate teamwork effectiveness	Low teamwork effectiveness	High teamwork effectiveness

2.1.6 Propositions regarding standardization of communication incidents

Higher Task Complexity	**Higher performing team**	**Lower performing team**
P5: Higher standardization of communication incidents is positively associated with teamwork effectiveness.	Differing data pattern	Differing data pattern
Lower Task Complexity	**Higher performing team**	**Lower performing team**
P6: Lower standardization of communication incidents is positively associated with teamwork effectiveness.	Differing data pattern	No cohesive data pattern

Higher performing team

Throughout the initiation phase, communication within the team was scheduled through temporal patterns as well as through directives what communication modes to deploy. That is, verbal progress reports and memos from team and team manager had to be submitted on a daily basis through the voicemail platform. The team manager circulated his memos always early in the morning, while the team members' progress reports were always submitted late in the afternoon (*stated by M1 A1*). In addition, individual team members were requested to communicate with the team manager, but not with the whole team, via telephone at least twice per week (*stated by M1 A1*). Over development, the team and team manager continued to forward verbal voicemail memos and reports on a daily basis (*stated by M1 A1*). In addition, the team manager held daily telephone conferences with the Managing Director in Sweden and the team members in Frankfurt (*stated by M1 M2*). Over, the team manager maintained phone contact with the team members in Stockholm and Frankfurt at least twice per week (*stated by M1 M2*). These phone calls had the character of team meetings and were scheduled according to protocol. The protocol detailed timing and content of phone-calls and was devised mutually by all team members (*communication protocol as evidence*). In cross-case comparison, the data display a moderately high level of standardization.

The emerging data pattern differs from the pattern predicted in Proposition 5 and Proposition 6. Complexity fluctuated throughout the project. Contrary to the

propositions, the data pattern suggests that standardization remained unaltered throughout the project, despite fluctuations in complexity (Table 9).

Table 9: Case 1; Standardization, complexity and teamwork effectiveness in higher performing team

Initiation Phase	Development Phase	Implementation Phase
Standardization: No fluctuations Communication within the team scheduled through temporal patterns as well as directives what communication modes to deploy	*Standardization: No fluctuations* Communication as in previous phase, but in addition daily telephone conferences between team manager and team members	*Standardization: No fluctuations* Intensively scheduled telephone conferences, but no more daily reports and no more personal meetings
Higher task complexity	Higher task complexity	Lower task complexity
High teamwork effectiveness	High teamwork Effectiveness	High teamwork effectiveness

Lower performing team

Over initiation the team adhered to a communication protocol, which outlined the frequency and timing of formal team meetings (*communication protocol as evidence*). These meetings were held through teleconferencing every week on the same day and at the same time. All team members were requested to attend (*stated by M1 A2*). Communication between these meetings was unstructured and conducted through telephone or e-mail on an ad hoc basis between individual members (*stated by A2*). One lengthy face-to-face meeting was conducted to address a particular complex problem (*stated by M1 A2*). Over development, an external developer joined the team but no specific communication patterns were established. Instead, it was agreed to maintain ad hoc communication through e-mail exchanges and telephone calls (*stated by M1 A2*). When the project encountered substantial problems, the team manager reintroduced a formal communication protocol (*stated by M1 A2 M2*). In addition, a strong pattern of fortnightly face-to-face meetings was established (*stated by M1 A2 M2*). Overall, the data indicate that standardized communication incidents contributed to teamwork effectiveness, while the lack of standardization over development was partly responsible for the breakdown in teamwork (Table 10). In cross-case comparison, the data display a moderately low level of standardization.

The emerging data pattern differs from the pattern predicted in Proposition 5. The data pattern suggests lower standardization and ineffective teamwork in a project

phase of higher complexity. Further, the case data display no cohesive pattern concerning Proposition 6. The data pattern indicates higher formalization and merely moderately effective teamwork in project phases of lower complexity.

Table 10: Case 1; Standardization, complexity and teamwork effectiveness in lower performing team

Initiation Phase	**Development Phase**	**Implementation Phase**
Moderate Standardization: Communication protocol outlining frequency and timing of formal team meetings; Team meetings are held through teleconferencing in strong temporal patterns; All team members requested to attend	*Lower Standardization:* No scheduled communication; Team agrees to maintain ad hoc communication through impersonal communications	*Higher Standardization:* Communication protocol re-established; Strong pattern of personal face-to-face meetings introduced
Lower task complexity	Higher task complexity	Lower task complexity
Moderate teamwork Effectiveness	Low teamwork effectiveness	High teamwork effectiveness

2.1.7 Propositions regarding teamwork effectiveness and team performance

	Higher performing team	**Lower performing team**
P7: Teamwork effectiveness is positively associated with the tangible dimension of team performance.	Corresponding data pattern	Corresponding data pattern
P8: Teamwork effectiveness is positively associated with the intangible dimension of team performance.	Corresponding data pattern	Corresponding data pattern

Higher performing team

The emerging data pattern corresponds to Proposition 7 and Proposition 8 (Table 11). All respondents asserted that they perceived teamwork as highly effective throughout the development process. Also, all respondents confirmed that the project met four out of four performance criteria.

Table 11: Case 1; Teamwork effectiveness and team performance in higher performing team

Project Performance	Respondent M1	Respondent A1	Respondent M2
(a) Task Outcome: Project on time	Yes	Yes	Yes
(b) Task Outcome: Project on budget	Yes	Yes	Yes
(c) Psychosocial Outcome: Individual satisfaction with project	Yes	Yes	Yes
(d) Psychosocial Outcome: Collective satisfaction with project	Yes	Yes	Not sure
Perceived Overall Teamwork Effectiveness	High	High	High

Lower performing team

The emerging data pattern corresponds to Proposition 7 and Proposition 8 (Table 12). Perceived teamwork effectiveness ranged from low to high throughout the project, resulting in moderate teamwork effectiveness. In particular the lack of teamwork effectiveness over the development phase resulted in a costly project revision, which grossly inflated project costs (over budget). Also, respondents cited this breakdown in teamwork over development as the main reason for their overall dissatisfaction with the project.

Table 12: Case 1; Teamwork effectiveness and team performance in lower performing team

Project Performance	Respondent M1	Respondent A2	Respondent M2
(a) Task Outcome: Project on time	Yes	Yes	Yes
(b) Task Outcome: Project on budget	No	No	No
(c) Psychosocial Outcome: Individual satisfaction with project	No	No	No
(d) Psychosocial Outcome: Collective satisfaction with project	No	No	No
Perceived Overall Teamwork Effectiveness	Moderate	Moderate	Moderate

2.1.8 Additional factors of relevance

Table 13 and Table 14 display other relevant factors that were highlighted by respondents.

Please note: Figure 2 provides the case overview of the above analysis.

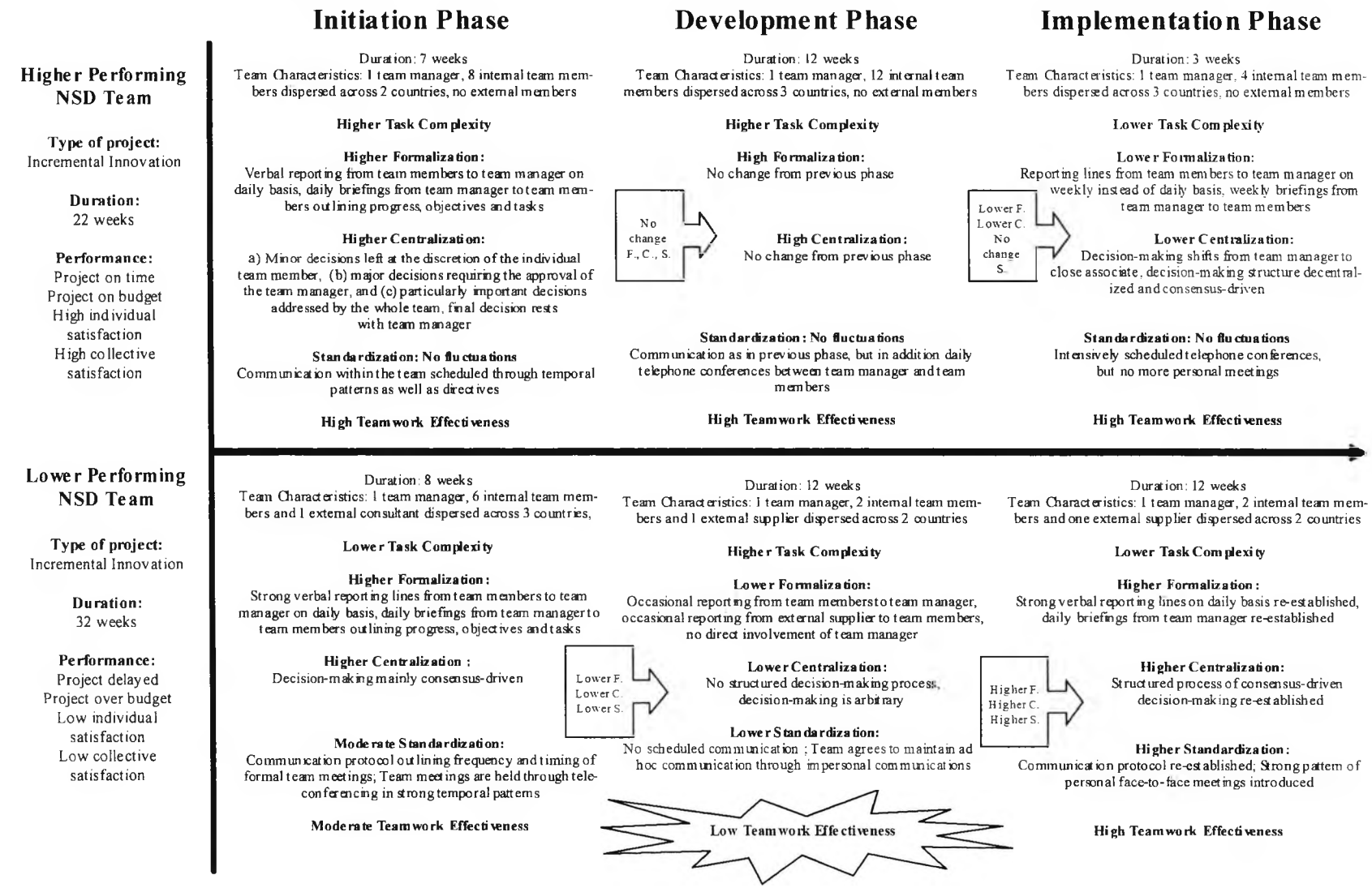
Table 13: Case 1. Additional factors of relevance in high performing team

Internal Factors	
Structure	
Project Level	Small, multifunctional team; team size fluctuates throughout project (*increases work process complexity*)
Business Level	Large multinational organization hierarchically structured
Skill	
Project Level	Team involves experienced experts (*positive impact on teamwork effectiveness*)
Business Level	Functional experts are available; all staff adept with virtual teamwork
Shared Values	
Project Level	Team driven to complete project successfully: much personal involvement from every team member (*positive impact on teamwork effectiveness*)
Business Level	Highly competitive and challenging culture with low tolerance for failure
Strategy	
Project Level	Client satisfaction most important strategic objective
Business Level	NPD/NSD not key to business strategy and evolves naturally out of the business process
Style	
Project Level	Team manager describes his style as 'generally hands off' but as 'more hands on' for virtual teams (*positive impact on teamwork effectiveness*)
Business Level	Senior management informed about project but no involvement
Staff	
Project Level	One team member new to the firm (*increases work process complexity*)
Business Level	Difficult to secure participation of experts on short notice: projects must be scheduled well in advance
External Factors	Client is closely involved in project development

Table 14: Case 1. Additional factors of relevance in low performing team

Internal Factors	
Structure	
Project Level	Small, multifunctional team; team size fluctuates throughout project (*increases work process complexity*); external members involved (*increases work process complexity*)
Business Level	Large multinational organization hierarchically structured
Skill	
Project Level	Team involves experienced experts; team has not co-operated before (*negative impact on teamwork effectiveness*)
Business Level	Functional experts are available, all staff adept with virtual teamwork
Shared Values	
Project Level	External team members are unable and unwilling to make full commitment to project (*negative impact on teamwork effectiveness*)
Business Level	Highly competitive and challenging culture with low tolerance for failure
Strategy	
Project Level	Client satisfaction most important strategic objective
Business Level	NPD/NSD not key to business strategy and evolves naturally out of the business process
Style	
Project Level	Team manager is too uninvolved, leaves development to his aides and external members (*negative impact on teamwork effectiveness*)
Business Level	Senior management informed about project, initially no involvement, involvement only after problems occur
Staff	
Project Level	Team not full-time deployed for the project; external team members difficult to access (*negative impact on teamwork effectiveness*)
Business Level	Difficult to secure participation of experts on short notice, projects must be scheduled well ahead
External Factors	NA

Figure 2: Case 1 Analysis Overview



2.2 Case 2: Schroders

Schroders Investment Management Ltd, Schroders Property Investment Ltd [2]

Interviewees:

Managing Director (M)
Schroder Property Investment
Management Limited
(Team Manager)

Associate (A1)
Schroder Property Investment
Management Limited

Associate (A2)
Schroder Property Investment
Management Limited

Documentation: Communication protocols, project proposals, other

Higher performing team *(informants M1 A1)*

Lower performing team *(informants M1 A2)*

2.2.1 Team performance

The case data indicate the following pattern regarding overall team performance:

Higher performing team: project on time, project on budget, high individual satisfaction with project, high collective satisfaction with project (*stated by M, confirmed by A1)*

Lower performing team: project delayed, project over budget, low individual satisfaction with project, low collective satisfaction with project (*stated by M, confirmed by A2)*

[2] For in-depth case description please refer to Appendix VI, Case 2

2.2.2 Teamwork effectiveness

The case data indicate the following pattern regarding teamwork effectiveness:

Table 15: Case 2; Teamwork effectiveness in higher performing team

	Quality of Inter-team Communication	Quality of Information Distribution	Quality of Task Execution	**Overall Teamwork Effectiveness**
Initiation Phase	Moderate *M*	High *M*	High *M*	**High**
Development Phase	High *M A1*	High *M A1*	High *M A1*	**High**
Implementation Phase	High *M A1*	High *M A1*	Moderate *M A1*	**High**

Overall, the higher performing team yielded high teamwork effectiveness throughout project execution (Table 15).

Table 16: Case 2; Teamwork effectiveness in lower performing team

	Quality of Inter-team Communication	Quality of Information Distribution	Quality of Task Execution	**Overall Teamwork Effectiveness**
Initiation Phase	Low *M A2*	Low *M A2*	Low *M A2*	**Low**
Development Phase	Moderate *M A2*	Moderate *M A2*	Moderate *M A2*	**Moderate**
Implementation Phase	High *M A2*	High *M A2*	High *M A2*	**High**

Overall, the lower performing team yielded varying teamwork effectiveness throughout project execution, ranging from low to moderate to high (Table 16).

2.2.3 Task complexity

The case data indicate the following pattern regarding task complexity:

Table 17: Case 2; Task complexity in higher performing team

	Task Predictability	Problem Analyzability	Team Interdependence	**Task Complexity**
Initiation Phase	High *M A1*	High *M A1*	Low *M A1*	**Low**
Development Phase	Low *M A1*	Low *M A1*	High *M A1*	**High (1)**
Implementation Phase	High *M1 A1 M2*	High *M1 A1 M2*	High *M1 A1 M2*	**High**

Overall, the higher performing team operated under varying task complexity ranging from low to high (Table 17). Respondents provided the following additional information regarding overall work process complexity in the higher performing team:

(1) Development Phase: An additional factor mentioned to have increased overall work process complexity was that the team manager insisted on a rapid development process in order to catch a perceived window of opportunity in the market. Accordingly, the actual development time was restricted to 6 weeks, which was only half the time usually allowed for fund developments (*stated by M A1*).

Table 18: Case 2; Task complexity in lower performing team

	Task Predictability	Problem Analyzability	Team Interdependence	**Task Complexity**
Initiation Phase	Low *M A2*	Low *M A2*	High *M A2*	**High (1)**
Development Phase	High *M A2*	High *M A2*	High *M A2*	**Low**
Implementation Phase	Low *M A2*	Low *M A2*	High *M A2*	**High**

Overall, the lower performing team operated under varying task complexity ranging from low to high (Table 18). Respondents provided the following additional information regarding overall work process complexity in the lower performing team:

(1) Initiation Phase: Over initiation overall work process complexity was perceived as particularly high because the co-operation with Schroders' Jersey office turned out to be a slow and frustrating exercise (*stated by M A2*). The Jersey office was key player in many of Schroders product development activities, being involved in several high profile equity deals. Since the Jersey staff operated under tremendous internal pressure and time constraints, the local Managing Director showed little consideration for the requests of the Property Investment unit, which was then regarded as a fringe player within the overall organization. As a consequence, the team manager struggled for weeks without notable success to establish an adequate reporting and communication line between the two offices (*stated by M*).

2.2.4 Propositions regarding formalization of the work process

Higher Task Complexity	**Higher performing team**	**Lower performing team**
P1: Lower formalization of the work process is positively associated with teamwork effectiveness.	Differing data pattern	Differing data pattern
Lower Task Complexity	**Higher performing team**	**Lower performing team**
P2: Higher formalization of the work process is positively associated with teamwork effectiveness.	Differing data pattern	No cohesive data pattern

Higher performing team:

The initiation phase continued for three years. Over this period a small number of individuals were charged with the preparation of the project, which was executed as a part-time exercise. The nature of the task allowed these individuals to work relatively autonomous and there was no need for substantial teamwork. Accordingly, the team manager regarded any form of formalization as superfluous (*stated by M*). However, once the project entered the busy development phase, the team manager established strong verbal reporting lines within the team and distributed daily written directives. These directives outlined project progress, highlighted risks, and summarized task objectives (*memos as evidence*). It was maintained that a detailed written protocol was an essential ingredient to accelerate project execution by reducing ambiguity inherent in the work process (*stated by M A1*). For implementation the team size was reduced to only six individuals. Accordingly the need for formalization was reduced as well (*stated by M*). These findings suggest that both, team size and the nature of the work task are associated with the level of formalization required for teamwork effectiveness (Table 19). In cross-case comparison, the data display a moderate level of formalization.

The emerging data pattern differs from the pattern predicted in Proposition 1 and Proposition 2. The observed data pattern suggests higher formalization and effective teamwork in project phases of higher complexity. Conversely, the data pattern

indicates lower formalization and effective teamwork in project phases of lower complexity (Table19).

Table 19: Case 2; Formalization, complexity and teamwork effectiveness in higher performing team

Initiation Phase	Development Phase	Implementation Phase
Lower Formalization: Small number of individuals works relatively autonomously.	*Higher Formalization:* Strong verbal reporting lines within the team and distributed written directives on daily basis. Directives outline project progress, highlight risks, and summarize task objectives.	*Lower Formalization:* Team size reduced to only six team members. Formalization reduced accordingly.
Lower task complexity	Higher task complexity	Higher task complexity
High teamwork effectiveness	High teamwork effectiveness	High teamwork effectiveness

Lower performing team:

The project was to be executed co-jointly with another, internal function. However, the team manager struggled for weeks without notable success to establish an adequate reporting and communication line between the two functions, which led to a breakdown in project execution (*stated by M*). The project eventually commenced with strongly established lines of reporting and directing. That is, all task forces within the team were obliged to forward written reports on a weekly basis (*stated by M A2*). Conversely, the team manager distributed daily written directives, outlining project progress and specifying task objectives. This strong pattern of formalization was maintained throughout the project (*stated by M A2*). The problem of ineffective teamwork described above was based on many sources of team-conflict, one of them being that one party rejected any attempt to establish managerial mechanisms to coordinate the work process. In cross-case comparison, the data display a moderately low level of formalization.

The emerging data pattern differs from the pattern predicted in Proposition 1 and Proposition 2. The observed data pattern suggests higher formalization and effective teamwork in a project phase of higher complexity. Conversely, the data pattern suggests lower formalization and ineffective teamwork in a project phase of higher complexity. Both patterns contradict Proposition 1. Further, the case data display no

cohesive pattern concerning Proposition 2. The data pattern indicates higher formalization and merely moderately effective teamwork in a project phase of lower complexity (Table 20).

Table 20: Case 2; Formalization, complexity and teamwork effectiveness in lower performing team

Initiation Phase	Development Phase	Implementation Phase
Lower Formalization: Co-developer rejects any attempt to structure the work process.	*Higher Formalization:* Strong reporting lines on weekly basis re-established, daily guidelines from team manager re-established	*High Formalization:* As in previous phase
Higher task complexity	Lower task complexity	Higher task complexity
Low teamwork effectiveness	Moderate teamwork effectiveness	High teamwork effectiveness

2.2.5 Propositions regarding centralization of decision-making

Higher Task Complexity	**Higher performing team**	**Lower performing team**
P3: Lower centralization of decision-making is positively associated with teamwork effectiveness.	Differing data pattern	Differing data pattern
Lower Task Complexity	**Higher performing team**	**Lower performing team**
P4: Higher centralization of decision-making is positively associated with teamwork effectiveness.	Differing data pattern	No cohesive data pattern

Higher performing team

As mentioned before, throughout the initiation phase each member worked in relative autonomy. Decision-making was left to the discretion of each member with the team manager being fairly uninvolved as he considered his staff to be the experts who "know what they are doing" (*stated by M*). This decentralized decision-making structure was altered once the team entered the hectic development phase. By that time, the team manager established a more centralized approach, making sure that he was "involved in everything, ... every decision, every turn, every change" (*stated by M*). That is, the team manager insisted on having the final word in all relevant decisions (*stated by A1*). The team manager maintained this centralized approach

throughout development and implementation (*stated by M A1*). These findings suggest patterns of both centralization and decentralization throughout project execution (Table 21). In cross-case comparison, the data display a moderate level of centralization.

The emerging data pattern differs from the pattern predicted in Proposition 3 and Proposition 4. The observed data pattern suggests higher centralization and effective teamwork in project phases of higher complexity. Conversely, the data pattern indicates lower centralization and effective teamwork in project phases of lower complexity (Table21).

Table 21: Case 2; Centralization, complexity and teamwork effectiveness in higher performing team

Initiation Phase	**Development Phase**	**Implementation Phase**
Lower Centralization: Decision-making left to the expert judgment of each team member	*Higher Centralization:* Final decision regarding relevant issues rests with the team manager	*High Centralization:* As in previous phase
Lower task complexity	Higher task complexity	Higher task complexity
High teamwork effectiveness	High teamwork effectiveness	High teamwork effectiveness

Lower performing team

Similar to Case 1, the team manager's attempts to establish a structured process of decision-making were rebuffed by the (internal) joint-developer (*stated by M A2*). As a consequence, decision-making was neither centralized nor decentralized, but arbitrary. After a project breakdown, the team manager established a largely decentralized structure of decision-making, which yielded only moderate results (*stated by M A2*). Consequently, he opted for a more centralized approach, where every major decision required his approval. This approach yielded far better results (*stated by M*) (Table 22). In cross-case comparison, the data display a moderately low level of centralization.

These findings argue for a structured approach towards decision-making, mutually agreed with all project participants. The emerging data pattern differs from the pattern predicted in Proposition 3 and Proposition 4. The observed data pattern suggests

higher centralization and effective teamwork in a project phase of higher complexity, contradicting Proposition 3. Further, the case data display no cohesive pattern concerning Proposition 4. The data pattern indicates lower centralization and merely moderately effective teamwork in a project phase of lower complexity.

Table 22: Case 2; Centralization, complexity and teamwork effectiveness in lower performing team

Initiation Phase	**Development Phase**	**Implementation Phase**
No Structured Decision-making Process Internal joint-developer rebuffs any attempt to establish a structured process of decision-making	*Lower Centralization:* Decision-making left to the judgment of each team member	*Higher Centralization:* Major decisions require team manager's approval
Higher task complexity	Lower task complexity	Higher task complexity
Low teamwork effectiveness	Moderate teamwork effectiveness	High teamwork effectiveness

2.2.6 Propositions regarding standardization of communication incidents

Higher Task Complexity	**Higher performing team**	**Lower performing team**
P5: Higher standardization of communication incidents is positively associated with teamwork effectiveness.	Corresponding data pattern	Corresponding data pattern
Lower Task Complexity	**Higher performing team**	**Lower performing team**
P6: Lower standardization of communication incidents is positively associated with teamwork effectiveness.	Corresponding data pattern	No cohesive data pattern

Higher performing team

Throughout the initiation phase, there was no need for intense teamwork and the team conducted both, personal and impersonal communication incidents on an ad hoc basis when required (*stated by M*). Impersonal communication was usually unstructured and was conducted through telephone or e-mail. Face-to-face interaction was limited to occasional meetings. The team manager was updated on progress through the London based team members on a weekly basis in regular face-to-face departmental

meetings (*stated by M).* Once the team entered the demanding development phase a communication protocol was established (*stated by M A1*). This protocol was updated on a weekly basis and scheduled all conference calls between the team manager and each participating function (*stated by A1*). In order to "make sure that everybody really understood what was going on" the team manager also called for weekly face-to-face meetings at the London office attended by the whole team including the Jersey members (*stated by M A1*). These face-to-face meetings were always scheduled on the same weekday and at the same time. This pattern of intense scheduling was maintained throughout the complex implementation phase. In cross-case comparison, the data display a moderately high level of standardization.

The emerging data pattern corresponds to the pattern predicted in Proposition 5 and Proposition 6. The observed data pattern suggests higher standardization and effective teamwork in project phases of higher complexity, relating to Proposition 5. Conversely, the data pattern indicates lower standardization and effective teamwork in project phases of lower complexity, relating to Proposition 6 (Table 23).

Table 23: Case 2; Standardization, complexity and teamwork effectiveness in higher performing team

Initiation Phase	**Development Phase**	**Implementation Phase**
Lower Standardization:	*Higher Standardization:*	*High Standardization:*
No structured process of inter-team communication incidents; team members communicate on ad hoc basis when the need emerges	Protocol established to schedule all personal and impersonal communication incidents; daily telephone conferences; weekly face-to-face meetings	Intensively scheduled telephone conferences on daily basis, but less frequent face-to-face meetings
Lower task complexity	Higher task complexity	Higher task complexity
High teamwork effectiveness	High teamwork effectiveness	High teamwork effectiveness

Lower performing team

Throughout initiation the team manager struggled for weeks without notable success to establish adequate communication lines between his functions and the joint developer (*stated by M*). Phone calls were not transferred or remained unreturned, e-mails got ignored, and several scheduled face-to-face meetings were postponed. After intensive restructuring the team manager established communication protocols, which

outlined the frequency and timing of formal team meetings (*stated by M A2*). These meetings were held through teleconferencing every week on the same day and at the same time. All team members were requested to attend. Communication between these meetings was unstructured and conducted through telephone or e-mail on ad hoc basis between individual members (*stated by M A2*). In addition, several face-to-face meetings were scheduled to address particular complex matters (*stated by M A2*). Overall, strong patterns of standardized communication incidents are evident in development phases characterized by high teamwork effectiveness. In particular, the lack of standardization over initiation coupled with a breakdown in teamwork effectiveness is noteworthy (Table 24). In cross-case comparison, the data display a moderate level of standardization.

The emerging data pattern corresponds to the pattern predicted in Proposition 5. The observed data pattern suggests higher standardization and effective teamwork in a project phase of higher complexity, relating to Proposition 5. Conversely, the pattern suggests lower standardization and ineffective teamwork in a project phase of higher complexity, also relating to Proposition 5. However, the case data display no cohesive pattern concerning Proposition 6. The data pattern indicates higher standardization and merely moderately effective teamwork in a project phase of lower complexity.

Table 24: Case 2; Standardization, complexity and teamwork effectiveness in lower performing team

Initiation Phase	**Development Phase**	**Implementation Phase**
Lower Standardization: Internal joint-developer rejects any attempt to establish a structured process of communication	*Higher Standardization:* Protocol established to schedule all personal and impersonal communication incidents; daily telephone conferences; weekly face-to-face meetings	*High Standardization:* As in previous phase
Higher task complexity	Lower task complexity	Higher task complexity
Low teamwork effectiveness	Moderate teamwork effectiveness	High teamwork effectiveness

2.2.7 Propositions regarding teamwork effectiveness and team performance

	Higher performing team	**Lower performing team**
P7: Teamwork effectiveness is positively associated with the tangible dimension of team performance.	Corresponding data pattern	Corresponding data pattern
P8: Teamwork effectiveness is positively associated with the intangible dimension of team performance.	Corresponding data pattern	Corresponding data pattern

Higher performing team

The emerging data pattern corresponds to Proposition 7 and Proposition 8. All respondents asserted that they perceived teamwork as highly effective throughout the development process. Also, all respondents confirmed that the project met four out of four performance criteria (Table 25).

Table 25: Case 2; Teamwork effectiveness and team performance in higher performing team

Project Performance	**Respondent M**	**Respondent A1**
(a) Task Outcome: Project on time	Yes	Yes
(b) Task Outcome: Project on budget	Yes	Yes
(c) Psychosocial Outcome: Individual satisfaction with project	Yes	Yes
(d) Psychosocial Outcome: Collective satisfaction with project	Yes	Yes
Perceived Overall Teamwork Effectiveness	High	High

Lower performing team

The emerging data pattern corresponds to Proposition 7 and Proposition 8. Respondents rated overall teamwork effectiveness as low or moderate. In particular the lack of teamwork effectiveness over the initiation phase resulted in a costly project

delay. Also, respondents cited this breakdown in teamwork over initiation as the main reason for their overall dissatisfaction with the project (Table 26).

Table 26: Case 2; Teamwork effectiveness and team performance in lower performing team

Project Performance	**Respondent M**	**Respondent A2**
(a) Task Outcome: Project on time	No	No
(b) Task Outcome: Project on budget	No	No
(c) Psychosocial Outcome: Individual satisfaction with project	No	Not sure
(d) Psychosocial Outcome: Collective satisfaction with project	No	No
Perceived Overall Teamwork Effectiveness	Low/Moderate	Moderate

2.2.8 Additional factors of relevance

Table 27 and Table 28 display other relevant factors that were highlighted by respondents.

Please note: Figure 3 provides the case overview of the above analysis.

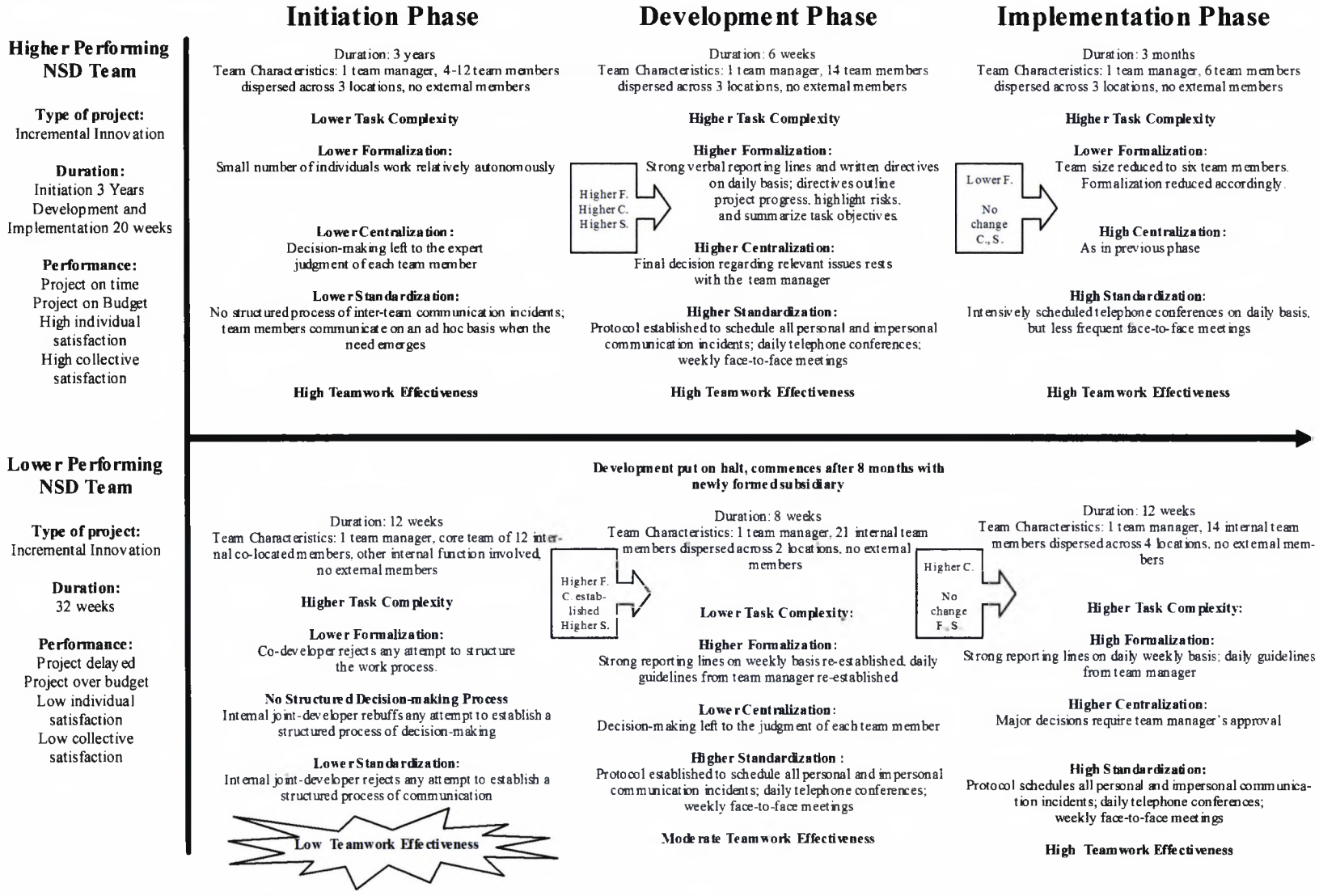
Table 27: Case 2: Additional factors of relevance in high performing team

Internal Factors	
Structure	
Project Level	Small, multifunctional team; team size, functions, and staff composition varies throughout project (*increases work process complexity*)
Business Level	Hierarchically managed functional departments who cooperate in cross-functional project teams
Skill	
Project Level	Team involves experienced experts all familiar with virtual teamwork (*positive impact on teamwork effectiveness*)
Business Level	Functional experts are available, all staff adept with virtual teamwork
Shared Values	
Project Level	Team driven to complete project successfully: much personal involvement from every team member (*positive impact on teamwork effectiveness*)
Business Level	Continuous innovation organizational core competency, whole business fully committed to NPD/NSD
Strategy	
Project Level	Quick development and launch to meet window of opportunity in the market (*increases work process complexity*)
Business Level	NPD/NSD key to business strategy
Style	
Project Level	Team manager fairly uninvolved in the lengthy and routine initiation phase, however becomes very hands on when the project enters the 'hot' development and implementation phase (*positive impact on teamwork effectiveness*)
Business Level	Senior management continuously informed about project progress, actively involved only in the implementation phase
Staff	
Project Level	Team only full-time deployed for development phase, all team members accessible and available (*positive impact on teamwork effectiveness*)
Business Level	Difficult to secure participation of experts on short notice, projects must be scheduled well in advance
External Factors	Market conditions dictate quick development and launch

Table 28: Case 2: Additional factors of relevance in low performing team

Internal Factors	
Structure	
Project Level	Medium-sized, multifunctional team; strong fluctuations in staff composition and functions involved (*increases work process complexity*)
Business Level	Hierarchically managed functional departments who cooperate in cross-functional project teams
Skill	
Project Level	Core-team and team manager not adept with virtual teamwork (*negative impact on teamwork effectiveness*)
Business Level	Functional experts are available
Shared Values	
Project Level	Core-team driven to complete project successfully, but non-core team members not committed (*negative impact on teamwork effectiveness*)
Business Level	Continuous innovation organizational core competency, whole business fully committed to NPD/NSD
Strategy	
Project Level	Project not core to business strategy, but nonetheless important
Business Level	NPD/NSD key to business strategy
Style	
Project Level	Over initiation team manager fails to establish authority (*negative impact on teamwork effectiveness*); over development team manager adopts a loose leadership style (*negative impact on teamwork effectiveness*); over implementation team manager adopts a tight leadership style (*positive impact on teamwork effectiveness*)
Business Level	Senior management continuously informed about project progress, when problems occur senior management acts as mediator, eventually senior management restructures division
Staff	
Project Level	Core-team not full-time deployed but accessible and available; non-core team members have only small role in development but are inaccessible and unavailable
Business Level	Difficult to secure participation of experts on short notice
External Factors	None

Figure 3: Case 2 Analysis Overview



2.3 Case 3: NM Rothschild & Sons

NM Rothschild's Acquisition Finance Team [3]

Interviewees:

First Director (D1)
Acquisition Finance Team
(Team Manager)

Associate (A1)
Acquisition Finance Team

Associate (A2)
Acquisition Finance Team

Director (D2)
Debt Capital Markets Advisory

Documentation: Project proposals, other

Higher performing team *(informants D1 A1 D2)*

Lower performing team *(informants D1 A2)*

2.3.1 Team performance

The case data indicate the following pattern regarding overall team performance:

Higher performing team: project on time, project on budget, high individual satisfaction with project, high collective satisfaction with project (*stated by D1, confirmed by A1 A2)*

Lower performing team: team suspended over initiation (*stated by M, confirmed by A2)*

[3] For in-depth case description please refer to Appendix VI, Case 3

2.3.2 Teamwork effectiveness

The case data indicate the following pattern regarding teamwork effectiveness:

Table 29: Case 3; Teamwork effectiveness in higher performing team

	Quality of Inter-team Communication	Quality of Information Distribution	Quality of Task Execution	**Overall Teamwork Effectiveness**
Initiation Phase	High *D1 A1 D2*	Moderate *D1 A1 D2*	High *D1 A1 D2*	**High**
Development Phase	High *D1 A1 D2*	High *D1 A1 D2*	Moderate *D1 A1 D2*	**High**
Implementation Phase	High D1 A1 D2	Moderate *D1 A1 D2*	High *D1 A1 D2*	**High**

Overall, the higher performing team yielded high teamwork effectiveness throughout project execution (Table 29).

Table 30: Case 3; Teamwork effectiveness in lower performing team

	Quality of Inter-team Communication	Quality of Information Distribution	Quality of Task Execution	**Overall Teamwork Effectiveness**
Initiation Phase	Low *D1 A2*	Low *D1 A2*	Low *D1 A2*	**Low**
Development Phase	NA	NA	NA	NA
Implementation Phase	NA	NA	NA	NA

Overall, the lower performing team low moderate teamwork effectiveness in one project phase (Table 30).

2.3.3 Task complexity

The case data indicate the following pattern regarding task complexity:

Table 31: Case 3; Task complexity in higher performing team

	Task Predictability	Problem Analyzability	Team Interdependence	**Task Complexity**
Initiation Phase	Moderate *D1 A1 D2*	Moderate *D1 A1 D2*	High *D1 A1 D2*	**Moderate**
Development Phase	Low *D1 A1 D2*	Low *D1 A1 D2*	High *D1 A1 D2*	**High (1)**
Implementation Phase	Moderate *D1 A1*	Low *D1 A1*	Moderate *D1 A1*	**Moderate (2)**

Overall, the higher performing team operated under varying task complexity ranging from moderate to high (Table 31). Respondents provided the following additional information regarding overall work process complexity in the higher performing team:

(1) Development Phase: An additional factor mentioned to have increased overall work process complexity was that the team size had increased to almost 70 members over development (*stated by D1 A1*). Also, the physical team structure was described as highly volatile with varying internal and external functions involved, some of which contributed to the project only for a short period of time (*stated by D1 A1*).

(2) Implementation Phase: Respondents asserted that the time pressure to meet the project deadline added considerably to overall work process complexity (*stated by A1*).

Table 32: Case 3; Task complexity in lower performing team

	Task Predictability	Problem Analyzability	Team Interdependence	**Task Complexity**
Initiation Phase	Low *D1 A2*	Low *D1 A2*	High *D1 A2*	**High (1)**
Development Phase	NA	NA	NA	NA
Implementation Phase	NA	NA	NA	NA

Overall, the lower performing team operated under high task complexity (Table 32). Respondents provided the following additional information regarding overall work process complexity in the lower performing team:

(1) Initiation Phase: An additional factor mentioned to have increased overall work process complexity was that the team comprised members from Germany and England, which created the problem of establishing a common frame of linguistic reference. In particular, translations of technical language proved problematic (*stated by A2*).

2.3.4 Propositions regarding formalization of the work process

Higher Task Complexity	**Higher performing team**	**Lower performing team**
P1: Lower formalization of the work process is positively associated with teamwork effectiveness.	Differing data pattern	Differing data pattern
Lower Task Complexity	**Higher performing team**	**Lower performing team**
P2: Higher formalization of the work process is positively associated with teamwork effectiveness.	Differing data pattern	No data pattern

Higher performing team:

Over initiation the team size was limited to 12 members, who were termed 'the core-team'. Due to this relatively small and stable team configuration, the team manager felt no need to establish formalized lines of reporting or directing (*stated by D1 A1*). This perception changed once the team entered the development phase. Over development the team size had increased to 68 members and involved internal and external functions. The team manager maintained loosely structured reporting lines with his core team on a daily basis. However, to inform the rest of the team he introduced daily memos detailing progress, tasks and objectives that were circulated through e-mail (*stated by D1 A1 D2*). The team manager and the core team co-jointly devised these memos. According to the team manager, it proved very time-consuming and daunting to devise memos with such detail on a daily basis. However, their effectiveness made worth the effort and greatly facilitated both the coordination of teamwork as well as the distribution of information across the many functions involved (*stated by D1 A1*). Despite a drastically reduced team size (to 8 members) for implementation, the team manager intended to maintain the daily memos. However, the time-pressure to meet the deadline made any written directives unwieldy and the team reverted to verbal lines of reporting (*stated by D1 D2*). The data further indicate that the team manager felt the need for much stronger formalization at mid-stream because the team size had increased drastically. In addition, an overall volatile physical team structure with strong fluctuations in functions involved and experts involved added to overall work process complexity. To counterbalance complexity the team manager then applied tight managerial

mechanisms to formalize the work process (Table 33). In cross-case comparison, the data display a moderately high level of formalization.

The emerging data pattern differs from the pattern predicted in Proposition 1 and Proposition 2. The observed data pattern suggests higher formalization and effective teamwork in project phases of higher complexity. Conversely, the data pattern indicates lower formalization and effective teamwork in project phases of lower complexity (Table33).

Table 33: Case 3; Formalization, complexity and teamwork effectiveness in higher performing team

Initiation Phase	**Development Phase**	**Implementation Phase**
Lower Formalization: No established formalized lines of reporting or directing	*Higher Formalization:* Daily memos, detailing progress, tasks and objectives, co-jointly devised by team manager and core team	*Lower Formalization:* Due to time-constraints no more written directives, only verbal lines of reporting and directing
Lower task complexity	Higher task complexity	Lower task complexity
High teamwork effectiveness	High teamwork effectiveness	High teamwork effectiveness

Lower performing team:

Due to several unfavourable circumstances the team manager was set in charge of a project team that dealt with a business area totally different from his area of expertise. He therefore preferred not to interfere with the team's dealings and left the members the utmost level of autonomy (M1 A2). However, from the team member's perspective this leaderless autonomy translated into chaos and confusion eventually resulting in a project breakdown and the team's suspension (A2). Over initiation there were neither established lines of reporting and directing nor a clear authority to report to or receive instruction from. Respondents associated this absence of a formalized work process with the collapse of teamwork (M1 A1). In addition, the data suggest another interesting finding: respondents described the work process as complex due to task-related factors such as low task predictability, low problem Analyzability, and high team interdependence. While task-related factors initially produced the perception of high complexity, the absence of a formalized work process subsequently increased complexity even more. That is, formalization appears to have a moderating

effect on work process complexity. While strong formalization tends to reduce complexity by providing coordination, the absence of formalization appears to increase complexity through the lack of coordination and guidance (Table 34). In cross-case comparison, the data display a moderately low level of formalization.

The emerging data pattern differs from the pattern predicted in Proposition 1. The observed data pattern suggests low formalization and ineffective teamwork in a project phase of high complexity. The project was terminated during the initiation phase. The lack of fluctuations towards lesser complexity allows no inference regarding Proposition 2.

Table 34: Case 3; Formalization, complexity and teamwork effectiveness in lower performing team

Initiation Phase	Development Phase	Implementation Phase
Low Formalization: No established formalized lines of reporting or directing	NA	NA
High task complexity	NA	NA
Low Teamwork Effectiveness	NA	NA

2.3.5 Propositions regarding centralization of decision-making

Higher Task Complexity	**Higher performing team**	**Lower performing team**
P3: Lower centralization of decision-making is positively associated with teamwork effectiveness.	Differing data pattern	Differing data pattern
Lower Task Complexity	**Higher performing team**	**Lower performing team**
P4: Higher centralization of decision-making is positively associated with teamwork effectiveness.	Differing data pattern	No data pattern

Higher performing team

Throughout initiation decision-making within the small core-team was purely consensus-driven. That is, the whole team discussed an issue extensively before a collective decision was made (*stated by D1 A1*). This decision-making process was

slightly altered over development. While the overall team size was increased to 68 members, decision-making remained centred around the core team of 12 members. That is, minor decisions were directly handled through each core member and his or her staff without contacting the team manager. Moderately important decisions were presented and explicated to the team manager through the respective core member before a mutual agreed decision was made. Major decisions that could seriously affect the project outcome were collectively addressed in the core team's face-to-face meetings (*stated by D1 A1 D2*). Over implementation the team was operating under tremendous time-pressure. To save time, each team member was authorized to make all decisions in his/her area of expertise independently without conferring with the team manager beforehand. Overall, the data suggest that centralization was adjusted according to changing variables such as the size of the team and the dispersion of team members as well as time-constraints (Table 35). In cross-case comparison, the data display a moderately high level of centralization.

The emerging data pattern differs from the pattern predicted in Proposition 3 and Proposition 4. The observed data pattern suggests higher centralization and effective teamwork in a project phase of higher complexity. Conversely, the data pattern indicates lower centralization and effective teamwork in project phases of lower complexity (Table 35).

Table 35: Case 3; Centralization, complexity and teamwork effectiveness in higher performing team

Initiation Phase	**Development Phase**	**Implementation Phase**
Lower Centralization: Decision-making within the core-team purely consensus-driven	*Higher Centralization:* Minor decisions are directly handled through each core member and his or her staff without contacting the team manager; Moderately important decisions are explicated to team manager before a mutual agreed decision is made; Major decisions are collectively addressed by the whole core team	*Lower Centralization:* Due to time constraints, each team member is authorised to make decisions independently in his/her area of expertise
Lower task complexity	Higher task complexity	Lower task complexity
High teamwork Effectiveness	High teamwork effectiveness	High teamwork effectiveness

Lower performing team

Each team member was given the utmost degree of autonomy without imposing any structure on the decision-making process. According to respondents, decision-making formed particularly difficult because of the considerable lack of adequate information distribution, which resulted in confusion and ambiguity. Also the limited information available often was riddled with dubious German to English translations of technical language. As a consequence, no member was able or willing to voice an expert opinion and many documents were sent back and forth with requests for clarification, resulting in cooperation deadlocks. The data indicate that decision-making was neither centralized nor decentralized, but arbitrary. The team's inability to establish a *structured* approach towards decision-making added to confusion and ambiguity among team members and severely hindered the decision-making process. As such, the data highlight the importance of structured decision-making.

The emerging data pattern differs from the pattern predicted in Proposition 3. The observed data pattern suggests low centralization and ineffective teamwork in a project phase of high complexity. The project was terminated during the initiation phase. The lack of fluctuations towards lesser complexity allows no inference regarding Proposition 4.

Table 36: Case 3; Centralization, complexity and teamwork effectiveness in lower performing team

Initiation Phase	Development Phase	Implementation Phase
Low centralization Lack of information results in confusion and ambiguity, which makes members reluctant to make decisions	NA	NA
High task complexity	NA	NA
Low teamwork effectiveness	NA	NA

2.3.6 Propositions regarding standardization of communication incidents

Higher Task Complexity	**Higher performing team**	**Lower performing team**
P5: Higher standardization of communication incidents is positively associated with teamwork effectiveness.	Differing data pattern	Differing data pattern
Lower Task Complexity	**Higher performing team**	**Lower performing team**
P6: Lower standardization of communication incidents is positively associated with teamwork effectiveness.	Differing data pattern	No data pattern

Higher performing team

Immediately after selection of the core team members, the team manager established a communication protocol, which scheduled all personal and impersonal communication incidents within the team (*stated by D1 A1*). Since the core team comprised UK-based members only, travelling proved relatively effortless. It was therefore established to conduct face-to-face group meetings fortnightly in London (*stated by D1 A1 D2*). It was further agreed that all core team members had to attend these meetings on a mandatory basis (*stated by D1 A1 D2*). The protocol detailed the timing and location of face-to-face meetings and was updated after each meeting (*protocol as evidence*). Usually the meetings were scheduled for the second and fourth Tuesday each month at 10.00 am. Occasionally, slight amendments were made according to the team members' other obligations (*stated by A1*). The meeting itself was strongly structured and comprised a detailed task agenda, which was co-jointly devised by the team beforehand (*stated by D1 A1*). Between face-to-face meetings the core team communicated according to an established schedule of teleconferences. That is, task groups within the team conferred with the team manager twice a day according to a task schedule. The entire team held teleconferences every week on Friday morning (*stated by D1 A1 D2*). Over development the group size had increased drastically. The team manager maintained daily reporting lines with his 12 core team members through telephone and fortnightly face-to-face meetings. To communicate with the rest of the team he introduced daily memos detailing progress, tasks and objectives that were circulated through e-mail (*stated by D1 A1 D2*). These memos followed strict temporal patterns and were distributed every day between 4 and 5 in

the afternoon (*stated by D1 A1*). Over implementation the team operated under considerable time constraints to meet the project deadline. Since no time was left for further face-to-face meetings, communication was limited to intensively scheduled teleconferences (*stated by D1 A1*). Overall the data indicate patterns of strongly standardized communication incidents throughout project execution (Table 37). In cross-case comparison, the data display a high level of standardization.

The emerging data pattern differs from the pattern predicted in Proposition 5 and Proposition 6. Complexity fluctuated throughout the project. Contrary to the propositions, the data pattern suggests that standardization remained unaltered throughout the project, despite fluctuations in complexity.

Table 37: Case 3; Standardization, complexity and teamwork effectiveness in higher performing team

Initiation Phase	**Development Phase**	**Implementation Phase**
Standardization: No fluctuations Communication protocol established, which schedules all personal and impersonal communication incidents within the team	*Standardization: No fluctuations* As in previous phase	*Standardization: No fluctuations* As in previous phase
Lower task complexity	Higher task complexity	Lower task complexity
High teamwork effectiveness	High teamwork effectiveness	High teamwork effectiveness

Lower performing team

Neither the team manager nor the team members established structured communication lines. Instead, communication was limited to occasional phone calls and few e-mail exchanges between individual team members on ad hoc basis as problems arose. It was maintained that this absence of a structured communication process was the main reason for poor inter-team communication. In cross-case comparison, the data display a low level of standardization.

The emerging data pattern differs from the pattern predicted in Proposition 5. The observed data pattern suggests low standardization and ineffective teamwork in a project phase of high complexity. The project was terminated during the initiation

phase. The lack of fluctuations towards lesser complexity allows no inference regarding Proposition 6.

Table 38: Case 3; Standardization, complexity and teamwork effectiveness in lower performing team

Initiation Phase	Development Phase	Implementation Phase
Low Standardization No structured communication lines established; inter-team communication on ad hoc basis through impersonal communications	NA	NA
High task complexity	NA	NA
Low teamwork effectiveness	NA	NA

2.3.7 Propositions regarding teamwork effectiveness and team performance

	Higher performing team	Lower performing team
P7: Teamwork effectiveness is positively associated with the tangible dimension of team performance.	Corresponding data pattern	No data pattern
P8: Teamwork effectiveness is positively associated with the intangible dimension of team performance.	Corresponding data pattern	Corresponding data pattern

Higher performing team

The emerging data pattern corresponds to Proposition 7 and Proposition 8. All respondents asserted that they perceived teamwork as highly effective throughout the development process. Also, all respondents confirmed that the project met four out of four performance criteria. Proposition 7 and Proposition 8 are therefore strengthened (Table 39).

Table 39: Case 3; Teamwork effectiveness and team performance in higher performing team

Project Performance	Respondent D1	Respondent A1	Respondent D2
(a) Task Outcome: Project on time	Yes	Yes	Yes
(b) Task Outcome: Project on budget	Yes	Yes	Yes
(c) Psychosocial Outcome: Individual satisfaction with project	Yes	Yes	Yes
(d) Psychosocial Outcome: Collective satisfaction with project	Yes	Yes	Not sure
Perceived Overall Teamwork Effectiveness	High	High	High

Lower performing team

The emerging data pattern corresponds to Proposition 8. Respondents maintained that low effectiveness in teamwork over initiation resulted in the team's suspension. Also, respondents indicated that low teamwork effectiveness was the main reason for individual and collective dissatisfaction with the project. Performance dimensions related to task-outcomes were not applicable.

Table 40: Case 3; Teamwork effectiveness and team performance in lower performing team

Project Performance	Respondent D1	Respondent A2
(a) Task Outcome: Project on time	NA	NA
(b) Task Outcome: Project on budget	NA	NA
(c) Psychosocial Outcome: Individual satisfaction with project	No	No
(d) Psychosocial Outcome: Collective satisfaction with project	No	No
Perceived Overall Teamwork Effectiveness	Low	Low

2.3.8 Additional factors of relevance

Table 41 and Table 42 display other relevant factors that were highlighted by respondents.

Please note: Figure 4 provides the case overview of the above analysis.

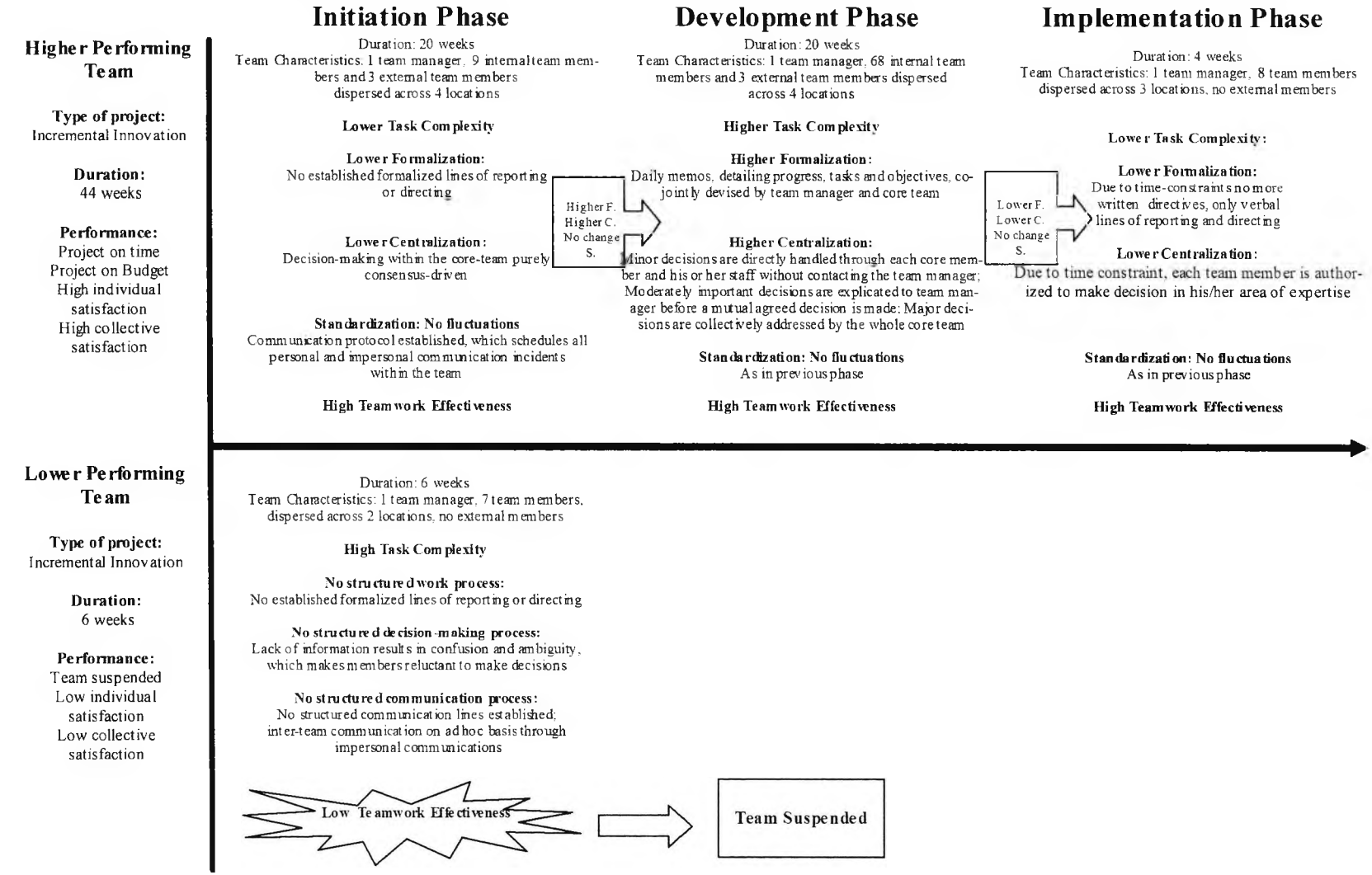
Table 41: Case 3: Additional factors of relevance in high performing team

Internal Factors	
Structure	
Project Level	Large multifunctional team; team size, functions, and staff composition varies considerably throughout project (*increases work process complexity*)
Business Level	Large old-established corporation with rigid hierarchies and bureaucratic systems
Skill	
Project Level	Team involves experienced experts all familiar with virtual teamwork, team manager well experienced with virtual teamwork (*positive impact on teamwork effectiveness*)
Business Level	Functional experts are available, all staff adept with virtual teamwork (*positive impact on teamwork effectiveness*)
Shared Values	
Project Level	Team manager ensures that all members meet personally at start of project to establish trust and overcome inertia, team driven to complete project successfully, much personal involvement from every team member (*positive impact on teamwork effectiveness*)
Business Level	Innovation becomes part of the business offering only on request of the client
Strategy	
Project Level	Ultimate objective is to deliver a high quality service on time to keep client satisfied
Business Level	Innovation is neither internally nurtured nor considered a major organizational strength
Style	
Project Level	To ensure effective virtual teamwork the manager adopts a style that is more 'hands on' than for traditional teamwork. team manager also acts as the mediator and final decision-maker when problems arise (*positive impact on teamwork effectiveness*)
Business Level	Senior management initiates project then charges the team manager with development and monitors progress
Staff	
Project Level	Team comprises internal and external experts, all team members accessible and available
Business Level	Difficult to secure participation of experts on short notice, projects must be scheduled well in advance
External Factors	Client dictates fast product development

Table 42: Case 3: Additional factors of relevance in low performing team

Internal Factors	
Structure	
Project Level	Small multi-functional team; few hierarchical levels
Business Level	Large old-established corporation with rigid hierarchies and bureaucratic systems
Skill	
Project Level	Team involves experienced experts who are not adept with virtual teamwork, team manager not experienced with the team's area of expertise (*negative impact on teamwork effectiveness*)
Business Level	Functional experts are available
Shared Values	
Project Level	Team does not fully understand the whole project, project regarded as one more job among many (*negative impact on teamwork effectiveness*)
Business Level	Innovation becomes part of the business offering only on request of the client, client needs to be satisfied
Strategy	
Project Level	No clearly established strategy, tasks only vaguely outlined
Business Level	Innovation is neither internally nurtured nor considered a major organizational strength
Style	
Project Level	Team manager is busy with other projects and does not interfere in an area he does not understand: no team manager involvement
Business Level	Senior management only involved in main project, not interested in minor sub-projects
Staff	
Project Level	Team comprises internal experts, team has never worked together before, team members inaccessible and unavailable
Business Level	Difficult to secure participation of experts on short notice, projects must be scheduled well in advance
External Factors	Project eventually outsourced to third party

Figure 4: Case 3 Analysis Overview



2.4 Case 4: Barclays Capital

Barclays Capital, Corporate Financial Advisory Team[4]

Interviewees:

Director (D)
Corporate Financial Advisory Team

Managing Director (MD)
Corporate Financial Advisory Team
(Team Manager)

Associate (A1)
Corporate Financial Advisory Team

Associate (A2)
Corporate Financial Advisory Team

Documentation: Project proposals, other

Higher performing team *(informants MD, D, A1)*

Lower performing team *(informants MD, D, A2)*

2.4.1 Team performance

The case data indicate the following pattern regarding overall team performance:

Higher performing team: project delayed, project on budget, high individual satisfaction with project, high collective satisfaction with project (*stated by MD, confirmed by D, A1)*

Lower performing team: project delayed, low individual satisfaction with project, low collective satisfaction with project (*stated by MD, hesitantly confirmed by D, fully confirmed by A2)*

[4] For in-depth case description please refer to Appendix VI, Case 4

2.4.2 Teamwork effectiveness

The case data indicate the following pattern regarding teamwork effectiveness:

Table 43: Case 4; Teamwork effectiveness in higher performing team

	Quality of Inter-team Communication	Quality of Information Distribution	Quality of Task Execution	**Overall Teamwork Effectiveness**
Initiation Phase	High *MD D*	High *MD D*	Moderate *MD D*	**High**
Development Phase	High *MD D A1*	Moderate *M A1*	High *M A1*	**High**
Implementation Phase	High *MD A1*	Moderate *MD A1*	High *MD A1*	**High**

Overall, the higher performing team yielded high teamwork effectiveness throughout project execution (Table 43).

Table 44: Case 4; Teamwork effectiveness in lower performing team

	Quality of Inter-team Communication	Quality of Information Distribution	Quality of Task Execution	**Overall Teamwork Effectiveness**
Initiation Phase	High *MD D A2*	High *MD D A2*	High *MD D A2*	**High**
Development Phase	Low *MD A2*	Low *MD A2*	Low *MD A2*	**Low**
Implementation Phase	*High MD A2*	High *MD A2*	Moderate *MD A2*	**High**

Overall, the lower performing team yielded varying teamwork effectiveness throughout project execution, ranging from low to moderate to high (Table 44).

2.4.3 Task complexity

The case data indicate the following pattern regarding task complexity:

Table 45: Case 4; Task complexity in higher performing team

	Task Predictability	Problem Analyzability	Team Interdependence	**Task Complexity**
Initiation Phase	High *MD A1 D*	Moderate *MD A1 D*	High *MD A1 D*	**Moderate**
Development Phase	Low *MD A1*	Low *MD A1*	High *M A1*	**High (1)**
Implementation Phase	Moderate *MD A1*	Low *MD A1*	Moderate *MD A1*	**Moderate**

Overall, the higher performing team operated under varying task complexity ranging from moderate to high (Table 45). Respondents provided the following additional information regarding overall work process complexity in the higher performing team:

(1) Development Phase: Similar to Case 3, the overall work process complexity was perceived as particularly high over development because of a drastic increase in team size to more than 100 members. In addition, respondents asserted that a highly volatile team structure involving various and varying internal and external functions added to complexity (*stated by MD A1*).

Table 46: Case 4; Task complexity in lower performing team

	Task Predictability	Problem Analyzability	Team Interdependence	**Task Complexity**
Initiation Phase	Low *MD A2 D*	High *MD A2 D*	Low *MD A2 D*	**Low**
Development Phase	Low *MD A2*	Low *MD A2*	High *MD A2*	**High (1)**
Implementation Phase	Moderate *MD A2*	Low *MD A2*	High *MD A2*	**Moderate**

Overall, the lower performing team operated under varying task complexity ranging from low to moderate to high (Table 46). Respondents provided the following additional information regarding overall work process complexity in the lower performing team:

(1) Development Phase: Overall work process complexity over development was perceived very high as tasks were difficult to predict and to analyze and team interdependence was intense. In addition, the team was intricately structured comprising two internal functions based in London, one internal function based in New York, four external advisors based in London, and one external collaborator based in Washington bringing the total of team members to approximately 100 individuals. Moreover, the cooperation with the external, Washington-based collaborator proved problematic. The project required intense teamwork between the two organizations and yet the joint developer rejected to implement and adapt to Barclay's collaboration system (*stated by MD A1*).

2.4.4 Propositions regarding formalization of the work process

Higher Task Complexity	**Higher performing team**	**Lower performing team**
P1: Lower formalization of the work process is positively associated with teamwork effectiveness.	Differing data pattern	No cohesive data pattern
Lower Task Complexity	**Higher performing team**	**Lower performing team**
P2: Higher formalization of the work process is positively associated with teamwork effectiveness.	Differing data pattern	Differing data pattern

Higher performing team:

Throughout the project the team made heavy use of a virtual working platform powered by online collaboration software. This platform allowed each team member to access and submit project files and to collaborate synchronously. Also, the platform contained a message board where the team manager left memos on a daily basis summarizing his phone conversations with individual team members and senior management (*stated by MD*). During the less complex initiation phase, the team manager's memos did not list directives concerning the execution of specific tasks. Instead, the memos reported on project progress in a more general sense, ensuring that crucial information was evenly distributed throughout the team (*stated by MD A1 D*). The message board also served as a medium for the team and the team manager to submit suggestions and to pose questions (*stated by MD A1*). During the highly complex development phase, the team manager had to supervise a development group of 110 people dispersed across the UK and the USA. To tackle this challenge, the team manager relied heavily on his core-team. That is, each member of the core team was in charge of a specified development function and would lead a subgroup of people involved in this function. Notwithstanding organizational hierarchies or boundaries, this functional subgroup had to report to and was given order from the core team member who in turn reported directly to the team manager (*stated by MD A1 D*). The team manager insisted on strong, written reporting and controlling lines within the core team, but did not interfere with group members outside the core team. All directives from the team manager to the core team members were forwarded in writing on a daily basis, detailing task execution. Based on these memos, the core

team members then issued their instructions to the many non-core members (*stated by MD A1 D*). Conversely, the core team members received written progress reports from their subordinates on a daily basis and, subsequently, forwarded these through a written summary to the team manager (*stated by MD A1*). Respondents asserted that these formalized lines of reporting and directing greatly facilitated information distribution and task execution within the large, dispersed team (*stated by MD A1 D*). During the less complex implementation phase, the team size was reduced to 28, mostly co-located, team members. The team manager still issued memos on a daily basis, but now requested written progress reports on a weekly instead of a daily basis (*stated by MD*).

The emerging data pattern differs from the pattern predicted in Proposition 1 and Proposition 2. The observed data pattern suggests higher formalization and effective teamwork in project phases of higher complexity. Conversely, the data pattern indicates lower formalization and effective teamwork in project phases of lower complexity (Table 47).

Table 47: Case 4; Formalization, complexity and teamwork effectiveness in higher performing team

Initiation Phase	**Development Phase**	**Implementation Phase**
Lower Formalization: Strong verbal reporting lines between core team and team manager on weekly basis; daily memos from team manager to update team on progress	*Higher Formalization:* Strong verbal reporting lines between core team and team managers on daily basis; detailed verbal directives from team manager to core team on daily basis	*Lower Formalization:* Strong verbal reporting lines between core team and team manager on weekly basis; daily memos from team manager to update team on progress
Lower task complexity	Higher task complexity	Lower task complexity
High teamwork effectiveness	High teamwork effectiveness	High teamwork effectiveness

Lower performing team:

During the less complex initiation phase, each participating work group had to submit a written progress report to the online collaboration platform on a weekly basis to keep the rest of the team informed. The team manager promoted an open-door policy wishing to be contacted by every team member through telephone to assist in problem solving (*stated by MD A2 D*). In addition, he maintained daily reporting lines with key

personnel, giving broader strategic directives *(stated by MD D)*. For development an external co-developer joined the team and the team size was increased to more than 100 members. Team leadership had to be shared between the team manager and his counterpart at the joint developer organization. To co-ordinate complex development, the team manager requested written progress reports from all participating functions twice per week (*stated by MD A2*). While teamwork between the internal functions evolved effortlessly, the cooperation with the external co-developer proved problematic. In particular, the external party declined to submit the progress reports, dismissing the suggestion as "superfluous" and "unworkable" (*stated by MD A2 D*). In addition, the joint-developer frequently ignored instructions and directives issued from the team manager (*stated by MD A2 D*). This situation resulted in a collaboration deadlock and the elimination of the joint-developer *(stated by MD D)*. During the less complex implementation phase, the team manager reduced formalization, still issuing daily written instructions to team members but reducing the frequency of written progress to one per week (*stated by MD A2*). In cross-case comparison, the data display a moderately low level of formalization.

The data show no cohesive pattern concerning Proposition 1. Overall, the data pattern suggests higher formalization and ineffective teamwork in a project phase of higher complexity, a pattern that corresponds to Proposition 1. Yet, teamwork only proved ineffective in relation to the co-operation between the two co-developers. Internally, the data pattern indicates higher formalization and effective teamwork in a project phase of higher complexity, a pattern that contradicts Proposition 1. The case data suggest that formalized lines of reporting and directing can be effective in phases of higher complexity, but need to be mutually agreed with all participants. Imposing formalization from the top without consensus can be a potential source for conflict, particularly when external, independent parties are involved. In relation to Proposition 2, the emerging data pattern differs from the predicted one. The observed data pattern suggests lower formalization and effective teamwork in project phases of lower complexity (Table 48).

Table 48: Case 4; Formalization, complexity and teamwork effectiveness in lower performing team

Initiation Phase	Development Phase	Implementation Phase
Lower Formalization: Strong reporting lines in writing on weekly basis, daily written guidelines from team manager to core team	*Higher Formalization:* Strong reporting lines in writing twice per week, daily written guidelines from team manager to team, but strong formalization rejected by external joint developer	*Lower Formalization:* Strong reporting lines in writing on weekly basis, daily written guidelines from team manager to core team
Lower complexity	Higher task complexity	Lower task complexity
High teamwork effectiveness	Low teamwork effectiveness	High teamwork effectiveness

2.4.5 Propositions regarding centralization of decision-making

Higher Task Complexity	**Higher performing team**	**Lower performing team**
P3: Lower centralization of decision-making is positively associated with teamwork effectiveness.	Differing data pattern	No cohesive data pattern
Lower Task Complexity	**Higher performing team**	**Lower performing team**
P4: Higher centralization of decision-making is positively associated with teamwork effectiveness.	Differing data pattern	Differing data pattern

Higher performing team

Throughout the less complex initiation phase, decision-making was largely consensus-driven. That is, the core-team frequently conferred about relevant issues with the team manager, collectively gathering intelligence before making a consensus-driven decision. Barclay's collaboration software proved particularly helpful in coordinating decision-making. The software programme contained a feature called the 'decision-tree'. Under this menu the members posted particularly complex or important issues that needed to be addressed collaboratively. Each team member then had the opportunity to file a suggestion, lead an online discussion, or phone the relevant person directly. Particularly complex and important issues such as regulatory and budgetary considerations were addressed in face-to-face meetings. During the highly complex development phase, decision-making shifted towards centralization. To ensure that the team manager received continuous information on project progress, each non-core team member was requested to contact a core-team member before

proceeding with decision-making. The core team member then evaluated the importance of the issue and decided on issues of lesser significance. In cases of more important matters, however, the team manager was consulted and the final decision was implemented only after approval from the team manager had been received. During the less complex implementation phase, the team reverted to lower centralization, with the entire team of now 28 team members collectively addressing decision-making. In cross-case comparison, the data display a high level of centralization.

The emerging data pattern differs from the pattern predicted in Proposition 3 and Proposition 4. The observed data pattern suggests higher centralization and effective teamwork in project phases of higher complexity. Conversely, the data pattern indicates lower centralization and effective teamwork in project phases of lower complexity (Table 49).

Table 49: Case 4; Centralization, complexity and teamwork effectiveness in higher performing team

Initiation Phase	**Development Phase**	**Implementation Phase**
Lower Centralization:	*Higher Centralization:*	*Lower Centralization:*
Team engages in consensus-driven decision-making	Decision-making is more centralized: the team confers about relevant issues and suggests a range of possible solutions to the team manager who makes the final decision	Team engages in consensus-driven decision-making
Lower task complexity	Higher task complexity	Lower task complexity
High teamwork effectiveness	Low teamwork effectiveness	Moderate teamwork effectiveness

Lower performing team

During the less complex initiation phase, the team size was small and comprised senior personnel of the developer and the joint-developer organization. The team engaged in purely decentralized and consensus-driven decision-making (*stated by MD A2*). During the highly complex development phase, the team size had increased considerably and comprised two large fractions, the developer and the joint-developer. Within the developer fraction decision-making was consensus-driven, but centralized (*stated by MD A2 D*). That is, the core team conferred about relevant

issues and suggested a range of possible solutions to the team manager who made the final decision. Across the two functions, decision-making had to be shared between the team manager of the developer organization and his counterpart at the joint-developer organization. However, frequent disagreement between the two managers created a working environment of underlying tensions, which was perceived by team members as "indirect rivalry" (*stated by A2 D*). Frustrated with the resulting cooperation deadlock the team manager eliminated the joint-developer and accepted sole responsibility for the project (*stated by MD*). During the less complex implementation phase, the team reverted to decentralized and consensus-driven decision-making (*stated by MD A2*). In cross-case comparison, the data display a moderate level of centralization.

Yet again, the case data display no coherent pattern concerning Proposition 1, but demonstrate the need for a structured approach towards decision-making, mutually agreed with all participants. In relation to Proposition 2, the emerging data pattern differs from the predicted one. The observed data pattern suggests lower centralization and effective teamwork in project phases of lower complexity (Table 50).

Table 50: Case 4; Centralization, complexity and teamwork effectiveness in lower performing team

Initiation Phase	**Development Phase**	**Implementation Phase**
Lower Centralization: Team engages in consensus-driven decision-making	*Higher Centralization:* Decision-making is more centralized: the team confers about relevant issues and suggests a range of possible solutions to the team manager who makes the final decision; tensions about decision-making arise with the external co-developer	*Lower Centralization:* Team engages in consensus-driven decision-making
Lower task complexity	Higher task complexity	Lower tasks complexity
High teamwork effectiveness	High teamwork effectiveness	High teamwork effectiveness

2.4.6 Propositions regarding standardization of communication incidents

Higher Task Complexity	**Higher performing team**	**Lower performing team**
P5: Higher standardization of communication incidents is positively associated with teamwork effectiveness.	Differing data pattern	No cohesive data pattern
Lower Task Complexity	**Higher performing team**	**Lower performing team**
P6: Lower standardization of communication incidents is positively associated with teamwork effectiveness.	Differing data pattern	No cohesive data pattern

Higher performing team

Throughout the project, the communication incidents within the core team were standardized through a communication log, which listed date and time of incidents as well as expected participants and task agendas (*stated by MD A1 D*). Over initiation the core team conducted one teleconference per day and one face-to-face meeting per month (*stated by MD A1*). Because of different time zones, the daily conference calls were held at 4.00 pm to include the New York based members. The monthly face-to-face meetings were always conducted toward the end of the month in New York. While it was mandatory for all core team members to attend both, teleconferences and face-to-face meetings, other team members were invited when needed (*stated by A1 D*). The communication log was part of the collaboration software and accessible by the entire team. Ad hoc interaction between scheduled meetings was conducted through the online collaboration system or through telephone. Over the highly complex development phase the frequency of face-to-face meetings was increased to one meeting every 3 weeks (*stated by MD A1 D*). Once the team entered the implementation phase, most of the project work had to be carried out in one geographic location. The daily teleconferences were therefore substituted with daily face-to-face meetings (*stated by MD*). Overall, the data suggest that communication incidents were strongly standardized throughout project execution. In cross-case comparison, the data display a high level of standardization.

The emerging data pattern differs from the pattern predicted in Proposition 5 and Proposition 6. Complexity fluctuated throughout the project. Contrary to the

propositions, the data pattern suggests that standardization remained unaltered throughout the project, despite fluctuations in complexity (Table 51).

Table 51: Case 4; Standardization, complexity and teamwork effectiveness in higher performing team

Initiation Phase	Development Phase	Implementation Phase
Standardization: No fluctuations Communication log schedules all personal and impersonal communication incidents; daily telephone conferences and monthly face-to-face meetings attended by the core team, other team members are invited when needed	*Standardization: No fluctuations* As in previous phase, but frequency of face-to-face meetings increased to every three weeks	*Standardization: No fluctuations* As in previous phase, but daily teleconferences substituted with daily face-to-face meetings because most team members co-located
Lower task complexity	Higher task complexity	Lower task complexity
High teamwork effectiveness	High teamwork effectiveness	High teamwork effectiveness

Lower performing team

Over initiation communication incidents within the team were limited to four lengthy face-to-face meetings in Washington as well as occasional phone-calls and e-mail exchanges. However, there was no established communication protocol (*stated by MD D*). Once the team entered the development phase, team size was increased to 60 internal members and 40 external members dispersed across 4 locations. To coordinate the project, the team held weekly face-to-face meetings with the London-based participants and synchronized all internal functions through Barclays' collaboration software (*stated by MD A2*). Problems started when the external joint developer rejected the offer to implement Barclays' collaboration software. The software was rejected on the grounds that it would be far too time-consuming and costly to introduce the entire external team to the system. Instead, it was suggested to rely on telephone and e-mail as the main modes of inter-team communication. However, any attempt to establish a communication log proved unfeasible due to the large size and intricate structure of the team (*stated by MD A2*). Most communication incidents therefore were conducted spontaneously (*stated by A2*). The pure reliance on telephone and e-mail made co-operation "slow and painful" resulting in severe communication impasses (*stated by MD A1*). After several internal team members criticized the apparent lack of information and coordination, the team manager filed a complaint with senior management (*stated by MD D*). Once the team entered the

implementation phase, several rearrangements had taken place and the team now adhered to a detailed communication protocol (*stated by MD A2*). In particular, face-to-face meetings and teleconferences were intensively scheduled, which resulted in more effective teamwork (*stated by MD A2*). Overall, the data illustrates that the potential lack of standardized communication incidents resulted in desolate information distribution and poor inter-team communication (Table 52). In cross-case comparison, the data display a low level of standardization.

Yet again, the data display neither a coherent pattern in relation to Proposition 5 nor to Proposition 6, but demonstrate the need for a structured, mutually agreed process of communication in project phases of higher complexity.

Table 52: Case 4; Standardization, complexity and teamwork effectiveness in lower performing team

Initiation Phase	**Development Phase**	**Implementation Phase**
Higher Standardization: Team is small and loosely structured: no established communication protocol but scheduled personal and impersonal communication incidents	*Lower Standardization:* Team size increases drastically, which makes face-to-face meetings difficult; external join-developer rejects the use of collaboration software; team fails to establish communication protocol	*Higher Standardization:* Team size reduced; communication protocol established which schedules all personal and impersonal communication incidents; daily telephone conferences; fortnightly face-to-face meetings
Lower task complexity	Higher task complexity	Lower task complexity
High teamwork effectiveness	Low teamwork effectiveness	Moderate teamwork effectiveness

2.4.7 Propositions regarding teamwork effectiveness and team performance

	Higher performing team	**Lower performing team**
P7: Teamwork effectiveness is positively associated with the tangible dimension of team performance.	Differing data pattern	Proposition is strengthened
P8: Teamwork effectiveness is positively associated with the intangible dimension of team performance.	Proposition is strengthened	Proposition is strengthened

Higher performing team

All respondents asserted that they perceived teamwork as highly effective throughout the development process. The emerging data pattern corresponds to Proposition 8, as respondents voiced great personal and collective satisfaction. However, the project did not meet all of the task-related dimensions of team performance, which differs from the data pattern predicted in Proposition 7 (Table 53).

Table 53: Case 4: Teamwork effectiveness and team performance in higher performing team

Project Performance	**Respondent MD**	**Respondent A1**	**Respondent D**
(a) Task Outcome: Project on time	No	No	No
(b) Task Outcome: Project on budget	Yes	Yes	Yes
(c) Psychosocial Outcome: Individual satisfaction with project	Yes	Yes	Yes
(d) Psychosocial Outcome: Collective satisfaction with project	Yes	Yes	Yes
Perceived Overall Teamwork Effectiveness	High	High	High

Lower performing team

The emerging data pattern corresponds to Proposition 7 and Proposition 8. Respondents rated overall teamwork effectiveness as low or moderate. In particular the lack of teamwork effectiveness over the development phase resulted in a costly project delay. Also, respondents cited this breakdown in teamwork over development as the main reason for their overall dissatisfaction with the project (Table 54).

Table 54: Case 4; Teamwork effectiveness and team performance in lower performing team

Project Performance	Respondent MD	Respondent A2	Respondent D
(a) Task Outcome: Project on time	No	No	No
(b) Task Outcome: Project on budget	NA	NA	NA
(c) Psychosocial Outcome: Individual satisfaction with project	No	No	Yes
(d) Psychosocial Outcome: Collective satisfaction with project	No	No	Not sure
Perceived Overall Teamwork Effectiveness	Low/Moderate	Low/Moderate	Moderate

2.4.8 Additional factors of relevance

Table 55 and Table 56 display other relevant factors that were highlighted by respondents.

Please note: Figure 5 provides a case overview of the above analysis.

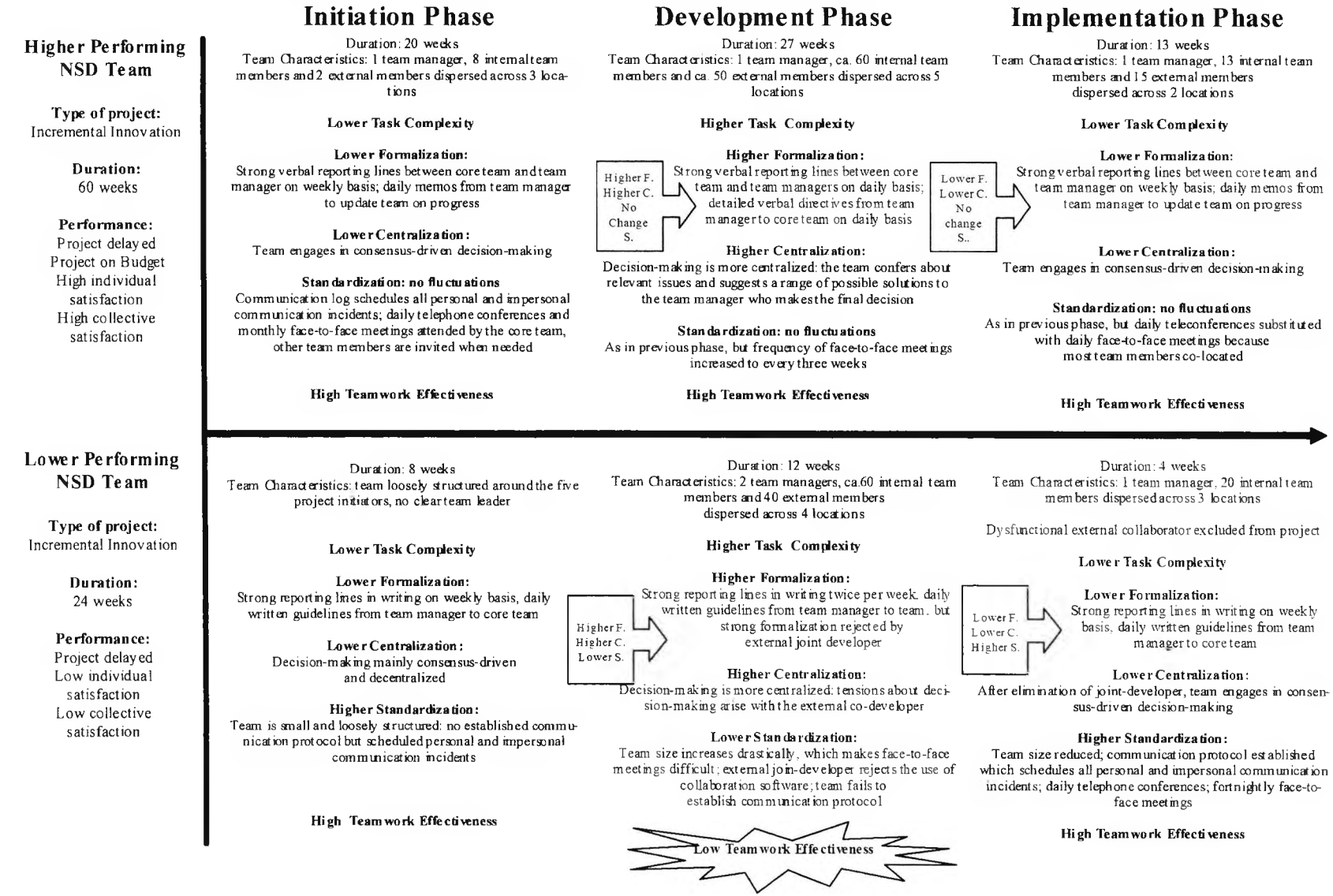
Table 55: Case 4: Additional factors of relevance in high performing team

Internal Factors	
Structure	
Project Level	Very large multifunctional team; team size varies significantly throughout project, many different functions, hierarchical levels and experts involved, many external members involved (*increases work process complexity*)
Business Level	Flat management structures and non-bureaucratic work processes
Skill	
Project Level	Team involves experienced experts all familiar with virtual teamwork, team manager well experienced with virtual teamwork (*positive impact on teamwork effectiveness*)
Business Level	Functional experts are available, all staff adept with virtual teamwork
Shared Values	
Project Level	Team driven to complete project successfully, much personal involvement from every team member (*positive impact on teamwork effectiveness*); external members not fully integrated in the project - no 'total buy-in'
Business Level	Whole business is committed to nurture and support NPD/NSD
Strategy	
Project Level	Ultimate objective is to develop a highly innovative product that delivers efficiencies to clients
Business Level	Innovation is considered key to the firms' long-term strategy and nurtured and supported by senior management
Style	
Project Level	To ensure effective virtual teamwork the manager adopts a style that is more 'hands on' than for traditional teamwork, team manager also acts as the mediator and final decision-maker when problems arise (*positive impact on teamwork effectiveness*)
Business Level	Senior management initiates project then charges the team manager with development and monitors progress (*positive impact on teamwork effectiveness*)
Staff	
Project Level	Team comprises internal and external experts, all team members accessible and available (*positive impact on teamwork effectiveness*)
Business Level	Difficult to secure participation of experts on short notice, projects must be scheduled well in advance
External Factors	NA

Table 56: Case 4: Additional factors of relevance in low performing team

Internal Factors	
Structure	
Project Level	Very large multifunctional team; team size varies significantly throughout project, many different functions, hierarchical levels and experts involved, many external members involved (*increases work process complexity*)
Business Level	Flat management structures and non-bureaucratic work processes
Skill	
Project Level	Internal team members familiar with virtual teamwork, but external members not adept with sophisticated ICT (*negative impact on teamwork effectiveness*)
Business Level	Functional experts are available, all staff adept with virtual teamwork
Shared Values	
Project Level	Internal team members driven to complete project successfully, but lack of 'buy-in' from external members, leadership rivalry between internal manager and external manager (*negative impact on teamwork effectiveness and team performance*)
Business Level	Whole business is committed to nurture and support NPD/NSD
Strategy	
Project Level	Ultimate objective is to develop an innovative, sound, and efficient financial service that provides value to the client and associates
Business Level	Innovation is considered key to the firms' long-term strategy and nurtured and supported by senior management
Style	
Project Level	Team manager maintains a 'hands on' style and an 'open-door' policy, after problems with external members and lack of support from senior management he adopts an 'autocratic' management style (*positive impact on teamwork effectiveness*)
Business Level	Senior management initiates project in close cooperation with the team manager; refuses to support team manager in critical situation
Staff	
Project Level	Team comprises internal and external experts, external team members inaccessible and unavailable (*negative impact on teamwork effectiveness*)
Business Level	Difficult to secure participation of experts on short notice, projects must be scheduled well in advance
External Factors	NA

Figure 5: Case 4 Analysis Overview



2.5 Case 5: Abbey National

Abbey National, Abbey National Treasury Services plc [5]

Interviewees:

Head of
Abbey National Treasury Services (H)

Managing Director (MD)
Abbey National Treasury Services
(Team Manager)

Associate (A1)
Abbey National Treasury Services

Associate (A2)
Abbey National Treasury Services

Documentation: Communication protocols, project proposals, memos, other

Higher performing team *(informants MD, H, A1)*

Lower performing team *(informants MD, H, A2)*

2.5.1 Team performance

The case data indicate the following pattern regarding overall team performance:

Higher performing team: project on time, project on budget, high individual satisfaction with project, high collective satisfaction with project (*stated by MD, confirmed by H A1)*

Lower performing team: project delayed, project over budget, low individual satisfaction with project, low collective satisfaction with project (*stated by MD, confirmed by H A2)*

[5] For in-depth case description please refer to Appendix VI, Case 5

2.5.2 Teamwork effectiveness

The case data indicate the following pattern regarding teamwork effectiveness:

Table 57: Case 5; Teamwork effectiveness in higher performing team

	Quality of Inter-team Communication	Quality of Information Distribution	Quality of Task Execution	**Overall Teamwork Effectiveness**
Initiation Phase	High *MD H A1*	High *MD D A1*	High *MD D A1*	**High**
Development Phase	High *H A1*	High *MD H A1*	Moderate *H A1*	**Moderate**
Implementation Phase	High *MD A1*	High *MD A1*	High *MD A1*	**High**

Overall, the higher performing team yielded varying teamwork effectiveness throughout project execution, ranging from high to moderate (Table 57).

Table 58: Case 5; Teamwork effectiveness in lower performing team

	Quality of Inter-team Communication	Quality of Information Distribution	Quality of Task Execution	**Overall Teamwork Effectiveness**
Initiation Phase	Low *MD A2*	Low *MD D A2*	Low *MD D A2*	**Low**
Development Phase	High *MD A2*	High *MD A2*	High *MD A2*	**High**
Implementation Phase	*High MD A2*	High *MD A2*	High *MD A2*	**High**

Overall, the lower performing team yielded varying teamwork effectiveness throughout project execution, ranging from low to high (Table 58).

2.5.3 Task complexity

The case data indicate the following pattern regarding task complexity:

Table 59: Case 5; Task complexity in higher performing team

	Task Predictability	Problem Analyzability	Team Interdependence	**Task Complexity**
Initiation Phase	Moderate *MD A1 H*	Moderate *MD A1 H*	High *MD A1 H*	**Moderate**
Development Phase	Low *MD A1 H*	Low *MD A1H*	High *MD A1H*	**High (1)**
Implementation Phase	Moderate *MD A1*	Moderate *MD A1*	Moderate *MD A1*	**Moderate**

Overall, the higher performing team operated under varying task complexity ranging from moderate to high (Table 59). Respondents provided the following additional information regarding overall work process complexity in the higher performing team:

(1) Development Phase: Due to unexpected regulatory complications overall work process complexity was perceived as particularly high (*stated by MD A1*).

Table 60: Case 5; Task complexity in lower performing team

	Task Predictability	Problem Analyzability	Team Interdependence	**Task Complexity**
Initiation Phase	Low *MD A2 H*	Low *MD A2 H*	High *MD A2 H*	**High (1)**
Development Phase	Low *MD A2*	Low *MD A2*	High *MD A2*	**High (2)**
Implementation Phase	Low *MD A2*	Low *MD A2*	High *MD A2*	**High (3)**

Overall, the lower performing team operated under high task complexity (Table 60). Respondents provided the following additional information regarding overall work process complexity in the lower performing team:

(1) Initiation Phase: Over initiation overall work process complexity was generally perceived as high due to the relative novelty of the project. However, the apparent lack of team interaction despite the need for strong team interdependence exponentially increased perceived complexity (*stated by A2*).

(2) Development Phase: Due to a problematic initiation phase the team commenced development with a delay of two weeks. This project delay put the team under considerable time-pressure, which added to complexity (*stated by MD A2*).

(3) Implementation Phase: Over implementation overall work process complexity was perceived particularly high for several reasons. First, the project had already exceeded its proposed timeframe and the launch date had to be postponed twice. To make matters worse, market conditions seemed to support an immediate launch. Second, the project delay had inflated the project's budget. Third, the project delay also resulted in problems with the external joint-developer organizations, which had to exchange their team members due to other obligations. Fourth, the project delay had seriously affected the marketing plan to launch the product, which resulted in additional costs and confusion. Last, due to time and budget constraints it proved unfeasible to unite the whole team in further face-to-face meetings and most team interaction was restricted to telephone and e-mail (*stated by MD A2*).

2.5.4 Propositions regarding formalization of the work process

Higher Task Complexity	**Higher performing team**	**Lower performing team**
P1: Lower formalization of the work process is positively associated with teamwork effectiveness.	Differing data pattern	Differing data pattern
Lower Task Complexity	**Higher performing team**	**Lower performing team**
P2: Higher formalization of the work process is positively associated with teamwork effectiveness.	Differing data pattern	No data pattern

Higher performing team:

Throughout the project the team adhered to verbal reporting, which was organized through daily teleconferences attended by all members. These communication incidents were scheduled according to a set timetable twice a day in the morning and afternoon (*stated by MD H A1*). Formalization was present in the form of daily memos drafted by the team manager immediately after the second teleconferenced team meeting and circulated by e-mail to all team members (*stated by MD H A1*). These memos summarized progress, redefined objectives, and formulated tasks for each single team member. Specifically, each memo displayed four columns (*memo as evidence*). The first column listed the task area and the names of the members in charge of that area. The second column briefly outlined each work task. The third column was updated daily and summarized the key points in regards to task execution. The fourth column was also updated on a daily basis and contained personal remarks from the team manager stressing the issues that needed special attention in task execution. Throughout the project, the team maintained daily teleconferences and daily memos as the main lines of reporting and directing. In cross-case comparison, the data display a high level of formalization.

The emerging data pattern differs from the pattern predicted in Proposition 1 and Proposition 2. Complexity fluctuated throughout the project. Contrary to the propositions, the data pattern suggests that formalization remained unaltered throughout the project, despite fluctuations in complexity (Table 61).

Table 61: Case 5; Formalization, complexity and teamwork effectiveness in higher performing team

Initiation Phase	Development Phase	Implementation Phase
Formalization: *No fluctuations* Strong verbal reporting lines between core team and team manager on daily basis; daily directives from team manager to team members detailing work task execution	*Formalization:* *No fluctuations* As in previous phase	*Formalization:* *No fluctuations* As in previous phase
Lower task complexity	Higher task complexity	Lower task complexity
High teamwork effectiveness	Moderate teamwork effectiveness	High teamwork effectiveness

Lower performing team:

When the team manager took charge of the project his experience was limited to co-located teams. Building on his experience with traditional work groups the team manager adopted a management style, which he described as "unobtrusive" and "hands off" (*stated by MD*). Over initiation formalization was kept at a minimum. That is, the team adhered to a broadly defined project proposal, but there were neither structured lines of reporting nor formalized directives (*stated by MD A2*). Reflectively, the team manager believed that each team member worked in relative isolation on assigned tasks that corresponded to his/her area of expertise. Also, he assumed that interaction within the team evolved naturally out of the work process without the need to be particularly planned or structured (*stated by MD*). From the viewpoint of team members, however, task execution formed problematic as an apparent lack of coordination resulted in impasses in information distribution (*stated by A2*). Eventually coordination problems escalated and two team members complained to senior management, seriously criticizing project management (*stated by MD H).* For the remainder of the project, the team manager adopted a more proactive and "hands on" leadership style, establishing stronger lines of reporting and introducing written directives on a daily basis (*stated by MD A2*). In cross-case comparison, the data display a low level of formalization.

High task complexity was observed throughout the project: Contrary to Proposition 1, over initiation the data indicate lower formalization and ineffective teamwork. What further weakens Proposition 1 is the data pattern observed over development and

implementation: Contrary to Proposition 1, the case data indicate higher formalization and effective teamwork in both phases. Overall then, the case data contradict Proposition 1 while the lack of fluctuation towards lesser complexity allows no inference concerning Proposition 2 (Table 62).

Table 62: Case 5: Formalization, complexity and teamwork effectiveness in lower performing team

Initiation Phase	Development Phase	Implementation Phase
Lower Formalization: Team guided by a broadly defined project proposal, but no structured lines of reporting and no formalized directives	*Higher Formalization:* Strong verbal reporting lines between core team and team manager on daily basis; daily directives from team manager to team members detailing work task execution	*High Formalization:* As in previous phase
High task complexity	High task complexity	High task complexity
Low teamwork effectiveness	High teamwork effectiveness	High teamwork effectiveness

2.5.5 Propositions regarding centralization of decision-making

Higher Task Complexity	**Higher performing team**	**Lower performing team**
P3: Lower centralization of decision-making is positively associated with teamwork effectiveness.	Differing data pattern	Differing data pattern
Lower Task Complexity	**Higher performing team**	**Lower performing team**
P4: Higher centralization of decision-making is positively associated with teamwork effectiveness.	Differing data pattern	No data pattern

Higher performing team

According to the team manager, decision-making was consensus-driven throughout the project with the team gathering as much intelligence as possible before reaching a collective decision (*stated by MD*). The team members, however, described decision-making as largely centralized (*stated by A1*). That is, the team manger usually engaged the team in a vivid discussion, pursuing the role of devil's advocate, before making the final decision on his own. Over development decision-making remained centred around the team manager. This, however, resulted in frequent disputes

between team manager and the external members about the strategic direction of the project (*stated by A1*). To resolve discrepancies the team manager invited all members to a clarifying face-to-face meeting in the presence of senior management (*stated by H A1*). According to the team manager, decision-making was consensus-driven throughout the project with the team gathering as much intelligence as possible before reaching a collective decision. The team members, however, described decision-making as largely centralized. That is, the team manger usually engaged the team in a vivid discussion, pursuing the role of devil's advocate, before making the final decision on his own. During the more complex development phase, decision-making remained centred around the team manager. This, however, resulted in frequent disputes between team manager and the external members about the strategic direction of the project. To resolve discrepancies the team manager invited all members to a clarifying face-to-face meeting in the presence of senior management. It was agreed to involve the external members more actively in the decision-making process. It was further agreed that the team manager reserved the right for having the last word in decision-making (*stated by MD A1*). From this point onwards teamwork was perceived as highly effective.

In the data collection for this study, the team manager only hinted at potential deficiencies in teamwork during development, but never discussed the issue in detail. The other two respondents, however, stated that discrepancies arose between the team manager and the external joint developer regarding an overly centralized approach towards decision-making. It was maintained by team members that strong centralization can facilitate teamwork in complex project phases, but this centralization needs to be mutually agreed with all participants rather than imposed from the top. The emerging data pattern differs from the pattern predicted in Proposition 3 and Proposition 4. Complexity fluctuated throughout the project. Contrary to the propositions, the data pattern suggests that centralization remained unaltered throughout the project, despite fluctuations in complexity (Table 63).

Table 63: Case 5; Centralization, complexity and teamwork effectiveness in higher performing team

Initiation Phase	Development Phase	Implementation Phase
Centralization: No fluctuations Decision-making centred around team manager	*Centralization: No fluctuations* Decision-making centred around team manager, which creates discrepancies with external collaborator	*Centralization: No fluctuations* After a clarifying discussion with external collaborator, decision-making remains centred around team manager
Lower task complexity	Higher task complexity	Lower task complexity
High teamwork effectiveness	Moderate teamwork effectiveness	High teamwork effectiveness

Lower performing team

Over initiation, decision-making evolved naturally out of the work process and followed no structured guidelines. Team members were given the utmost autonomy in deciding about the issues related to their area of expertise (*stated by MD A2*). The team manager remained disengaged in decision-making and only interfered when explicitly asked to do so by team members or senior management (*stated by H A2*). While team members criticized the lack of formalization over initiation they reportedly welcomed the unstructured and decentralized approach towards decision-making (*stated by A2*). Over development and implementation the team manager altered his leadership style and adopted a more proactive approach (*stated by MD A2*). While the team manager asserted that decision-making remained decentralized and consensus-driven throughout the project (*stated by MD*), the team members observed a shift towards centralization (*stated by A2*). In particular, over the turbulent implementation phase respondents described decision-making as strongly centralized. Overall the data then suggests that decision-making ranged from unstructured-decentralized to structured centralized to strongly centralized. Despite the fact that team members voiced their preference for a decentralized approach, high teamwork effectiveness was yielded only over project phases characterized by higher centralization. In cross-case comparison, the data display a moderately low level of centralization.

High task complexity was observed throughout the project: Contrary to Proposition 3, over initiation the data indicate lower centralization and ineffective teamwork. What

further weakens Proposition 3 is the data pattern observed over development and implementation: Contrary to Proposition 3 the case data indicate higher centralization and effective teamwork in both phases. Overall then, the case data contradict Proposition 3 while the lack of fluctuation towards lesser complexity allows no inference concerning Proposition 4 (Table 64).

Table 64: Case 5; Centralization, complexity and teamwork effectiveness in lower performing team

Initiation Phase	**Development Phase**	**Implementation Phase**
Lower Centralization: Decision-making purely consensus-driven and decentralized	*Higher Centralization* Team manager adopts a more proactive leadership style: decision-making more centralized	*Higher Centralization:* Decision-making centred on team manager
High task complexity	High task complexity	High task complexity
Low teamwork effectiveness	High teamwork effectiveness	High teamwork effectiveness

2.5.6 Propositions regarding standardization of communication incidents

Higher Task Complexity	**Higher performing team**	**Lower performing team**
P5: Higher standardization of communication incidents is positively associated with teamwork effectiveness.	Differing data pattern	Corresponding data pattern
Lower Task Complexity	**Higher performing team**	**Lower performing team**
P6: Lower standardization of communication incidents is positively associated with teamwork effectiveness.	Differing data pattern	No data pattern

Higher performing team

Throughout the project, the team adhered to a communication protocol, which scheduled location, timing, and content of team meetings (*protocol as evidence*). Over initiation, team meetings were conducted through daily telephone-conferences in which all members participated. These communication incidents were scheduled according to a set timetable twice a day in the morning and afternoon. In telephone-conferences the team discussed particularly critical issues. Between telephone-

conferences team members interacted on an ad hoc basis either through e-mail or telephone. Throughout the initiation phase face-to-face meetings were considered superfluous because of the familiarity of all members and their experience with the project task (*stated by MD*). Over development those team members located at Abbey National continued to organize communication incidents through daily telephone conferences. To incorporate the external members in the work process, the team manager introduced bi-monthly face-to-face meetings held at the London premises of Abbey National (*stated by MD A2*). After the development phase the project was put on halt for a period of three months over which the team continuously monitored the market to identify a window of opportunity. At this stage, the team size was reduced to two members who worked part-time for the project. Team interaction was restricted to occasional telephone calls between the two members and the team manager to evaluate market movements (*stated by MD*). Once market conditions deemed favourable the whole team united again for three weeks of intense cooperation. Throughout the last three weeks of teamwork communication incidents resumed through daily telephone conferences and three intensively scheduled face-to-face meetings (*stated by MD H A2*) (Table 65). In cross-case comparison, the data display a high level of standardization.

The emerging data pattern differs from the pattern predicted in Proposition 5 and Proposition 6. Complexity fluctuated throughout the project. Contrary to the propositions, the data pattern suggests that standardization remained unaltered throughout the project, despite fluctuations in complexity (Table 65).

Table 65: Case 5; Standardization, complexity and teamwork effectiveness in higher performing team

Initiation Phase	**Development Phase**	**Implementation Phase**
Standardization: No fluctuations Communication protocol schedules location, timing, and content of team meetings; daily telephone conferences but no face-to-face meetings	*Standardization: No fluctuations* As in previous phase, but bi-monthly face-to-face meetings introduced to incorporate external members	*Standardization: No fluctuations* As in previous phase
Lower task complexity	Higher task complexity	Lower task complexity
High teamwork effectiveness	Moderate teamwork effectiveness	High teamwork effectiveness

Lower performing team

In a first move, the team manager invited all members to a face-to-face meeting in London to get acquainted and to outline project objectives (*stated by MD A2*). However, it soon became clear that money and time constraints made further face-to-face meetings unfeasible, leaving the team no other choice but to interact through telephone and e-mail. In spite of this reliance on impersonal communications, there was no communication protocol established and all inter-team communication was conducted on an unstructured ad hoc basis (*stated by MD A2*). From the viewpoint of team members, task execution formed problematic as an apparent lack of inter-team communication resulted in impasses in information distribution (*stated by A2*). Team members felt "left in the dark" about the strategic direction of the project, the work of other members and the significance of their own contribution (*stated by A2*). In addition, all team members were busy individuals who participated in several different projects simultaneously. As a consequence, inter-team communication suffered due to time constraints and the inaccessibility of team members (*stated by MD A2*). Eventually, two team members filed a complaint, criticizing poor project management (*stated by MD H*). Henceforth, the team agreed on a daily telephone-conference on a set time and with all members participating (*stated by MD A2*). Also, the team manager agreed with senior management to provide additional funds for a bi-monthly face-to-face meeting attended by the whole team (*stated by MD H*). Working with the new strategy teamwork effectiveness improved dramatically (*stated by MD A2*). Particularly, the team appreciated the bi-monthly face-to-face meetings, which were seen as an opportunity to verify issues and to present work progress (*stated by A2*). Also, these meetings served as valuable platform to incorporate external members from Barclays Capital and JP Morgan who had joined the project for the development phase. However, the problem of time-constraints remained throughout the project with several team members being unable to participate in telephone-conferences or to attend face-to-face meetings on a regular basis (*stated by MD*). Over implementation further face-to-face meetings proved unfeasible due to time and budget constraints. To ensure effective teamwork nonetheless, the team manager increased the telephone conferences from once to twice a day and insisted on the participation of all members (*stated by MD A2*). Overall, the data indicate that the lack of structured communication over initiation was partly responsible for low teamwork effectiveness. However, once a standardized communication process was

established, teamwork effectiveness improved accordingly (Table 66). In cross-case comparison, the data display a low level of standardization.

High task complexity was observed throughout the project: Corresponding to Proposition 5, over initiation the data indicate lower standardization and lower teamwork effectiveness. What further strengthens Proposition 5 is the data pattern observed over development and implementation: In line with Proposition 5, the case data indicate higher standardization and higher teamwork effectiveness in both phases. Overall then, the case data strengthen Proposition 5 while the lack of fluctuations towards lesser complexity allows no inference concerning Proposition 6 (Table 66).

Table 66: Case 5; Standardization, complexity and teamwork effectiveness in lower performing team

Initiation Phase	**Development Phase**	**Implementation Phase**
Lower Standardization: No communication protocol established, communication evolves arbitrarily out of the work process and is conducted through impersonal communication modes	*Higher Standardization:* After communication breakdown a communication protocol is established and face-to-face meetings are introduced	*High Standardization:* Due to time and budget constrains no further face-to-face meetings feasible, instead intensively scheduled teleconferences on daily basis
High task complexity	High task complexity	High task complexity
Low teamwork effectiveness	High teamwork effectiveness	High teamwork effectiveness

2.5.7 Propositions regarding teamwork effectiveness and team performance

	Higher performing team	**Lower performing team**
P7: Teamwork effectiveness is positively associated with the tangible dimension of team performance.	Corresponding data pattern	Corresponding data pattern
P8: Teamwork effectiveness is positively associated with the intangible dimension of team performance.	Corresponding data pattern	Corresponding data pattern

Higher performing team

Table 67: Case 5; Teamwork effectiveness and team performance in higher performing team

Project Performance	Respondent MD	Respondent A1	Respondent H
(a) Task Outcome: Project on time	Yes	Yes	Yes
(b) Task Outcome: Project on budget	Yes	Yes	Yes
(c) Psychosocial Outcome: Individual satisfaction with project	Yes	Yes	Yes
(d) Psychosocial Outcome: Collective satisfaction with project	Yes	Not sure	Yes
Perceived Overall Teamwork Effectiveness	High	Moderate	High

The emerging data pattern corresponds to Proposition 7 and Proposition 8. The respondents asserted that they perceived teamwork as highly to moderately effective throughout the development process. Also, the respondents asserted that the project met all performance criteria for both, the task outcomes and the psychosocial outcomes. While the data strengthen Proposition 7 and Proposition 8, it needs to be pointed out that Respondent A1 remained undecided whether the entire team enjoyed collective satisfaction with the project. The respondent cautioned that the external team members might have perceived the project as less satisfactorily due to discrepancies over the development phase (Table 67).

Lower performing team

The emerging data pattern corresponds to Proposition 7 and Proposition 8. Respondents rated overall teamwork effectiveness as low or moderate. In particular the lack of teamwork effectiveness over the initiation phase resulted in a costly project delay. Also, respondents cited this breakdown in teamwork over development as the main reason for their individual and collective dissatisfaction with the project (Table 68).

Table 68: Case 5; Teamwork effectiveness and team performance in lower performing team

Project Performance	Respondent MD	Respondent A2	Respondent H
(a) Task Outcome: Project on time	No	No	No
(b) Task Outcome: Project on budget	No	No	No
(c) Psychosocial Outcome: Individual satisfaction with project	No	No	Yes
(d) Psychosocial Outcome: Collective satisfaction with project	No	No	Not sure
Perceived Overall Teamwork Effectiveness	Moderate	Low	Moderate

2.5.8 Additional factors of relevance

Table 69 and Table 70 display other relevant factors that were highlighted by respondents.

Please note: Figure 6 provides a case overview of the above analysis.

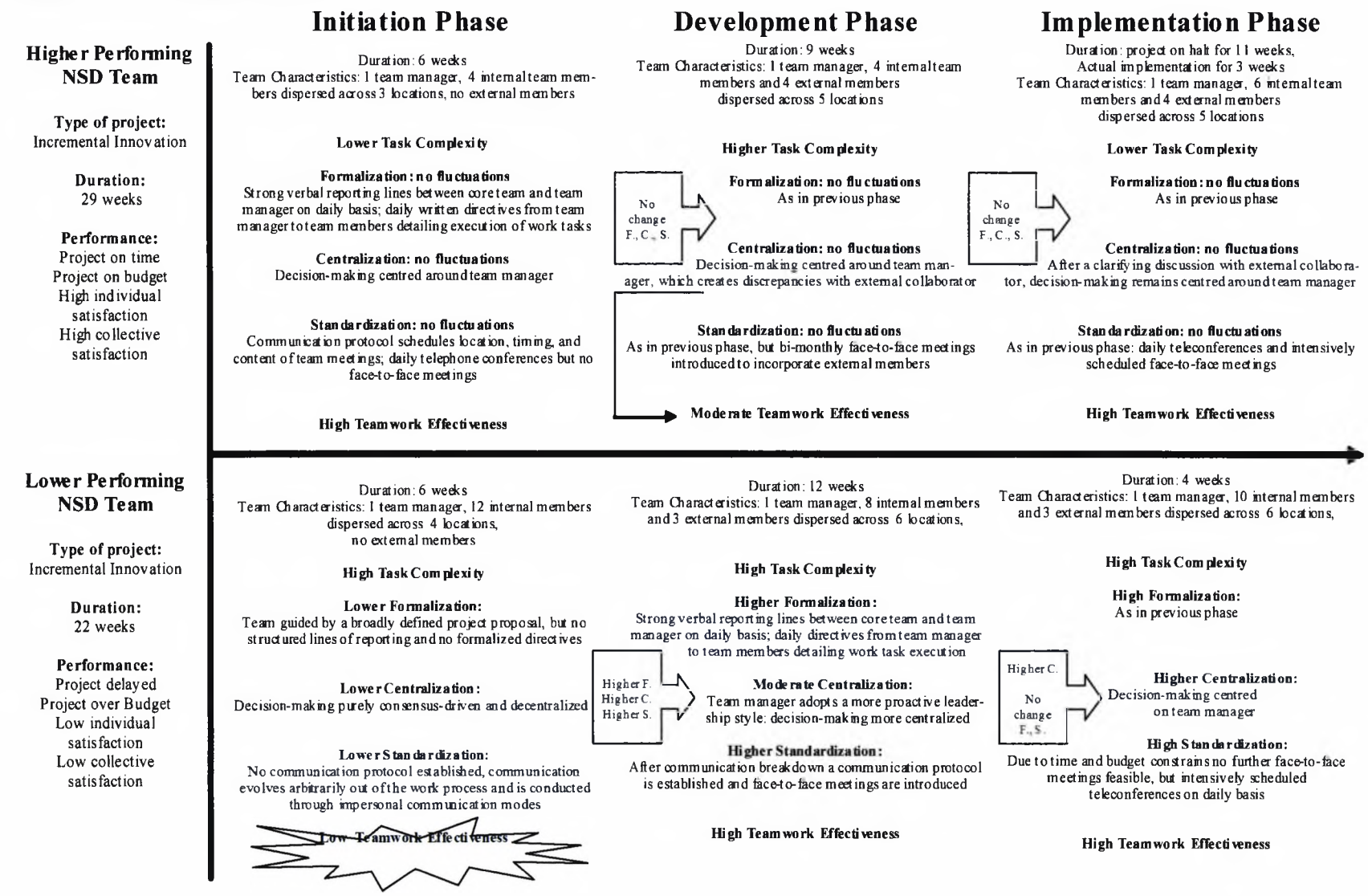
Table 69: Case 5: Additional factors of relevance in high performing team

Internal Factors	
Structure	
Project Level	Small multifunctional team; team size varies slightly throughout project; external members involved
Business Level	Hierarchical and bureaucratic structure; organization undergoes an extensive restructuring program towards a flatter and more flexible structure
Skill	
Project Level	Team involves experienced experts all familiar with virtual teamwork, team manager experienced with virtual teamwork (*positive impact on teamwork effectiveness*)
Business Level	Functional experts are available, most staff adept with virtual teamwork
Shared Values	
Project Level	Internal team members driven to complete project successfully, external members do participate enthusiastically but disputes arise about authority of decision-making, much personal involvement from every team member nonetheless
Business Level	Organizational climate of of high uncertainty and risk aversion; innovation of minor importance due to overwhelming organizational problems
Strategy	
Project Level	Ultimate objective is to quickly develop and launch the product to meet window of opportunity
Business Level	Innovation is considered important but not key to the firms' long-term strategy; extensive restructuring creates internal turbulences that hinder large innovation projects
Style	
Project Level	Team manager describes his leadership style as 'hands on' but insists that this applies only to virtual teams, when managing his co-located department his leadership style is 'hands off'
Business Level	Senior management informed about project; becomes involved only on request on team manager to resolve dispute
Staff	
Project Level	Team comprises internal and external experts, all internal members well acquainted; all team members accessible and available
Business Level	Difficult to secure participation of experts on short notice, projects must be scheduled well in advance
External Factors	Unforeseen regulatory complications (*increases work process complexity*)

Table 70: Case 5: Additional factors of relevance in low performing team

Internal Factors	
Structure	
Project Level	Small multifunctional team; team size varies slightly throughout project; external members involved
Business Level	Hierarchical and bureaucratic structure; organization undergoes an extensive restructuring program towards a flatter and more flexible structure
Skill	
Project Level	Team manager experienced with the area of development but inexperienced with virtual teamwork (*negative impact on teamwork effectiveness*)
Business Level	Functional experts are available, most staff adept with virtual teamwork
Shared Values	
Project Level	Team members operate under tremendous time constraints, perceive apparent lack of teamwork as strenuous, eventually team members complain to senior management
Business Level	Organizational climate of of high uncertainty and risk aversion: innovation of minor importance due to large-scale organizational problems
Strategy	
Project Level	Ultimate objective is to quickly develop and launch the product to meet window of opportunity
Business Level	Innovation is considered important but not key to the firms' long-term strategy; extensive restructuring creates internal turbulences that hinder large innovation projects
Style	
Project Level	Team manager first applies a 'very hands off' style because of his experience with traditional teams (*negative impact on teamwork effectiveness*); when problems arise with teamwork effectiveness team manager transforms his style into 'very hands on', bordering on 'autocratic'
Business Level	Senior management informed about project; becomes involved only after team members complain
Staff	
Project Level	Team comprises internal and external experts, all team members operate under tremendous time constraints
Business Level	Difficult to secure participation of experts on short notice, projects must be scheduled well in advance
External Factors	NA

Figure 6: Case 5 Analysis Overview



2.6 Case 6: Lloyds TSB

Lloyds TSB, Financial Institutions & International Trade Finance Unit [6]

Interviewees:

Director
of Relationship Banking (D1)
(Team Manager)

Director
Lloyds TSB Financial Institutions & International Trade Finance (D2)

Associate
Relationship Banking (A)

Managing Director (D3)
Cogent
(External Joint Developer)

Documentation: Project proposals, other
Observation: Access to the online project log for demonstration purposes

Higher performing team *(informants D1 D2 D3 A)*

Lower performing team *(informants D1 D2 D3 A)*

2.6.1 Team performance

The case data indicate the following pattern regarding overall team performance:

Higher performing team: project on time, project on budget, high individual satisfaction with project, high collective satisfaction with project (*stated by D1, confirmed by D2 D3 A)*

Lower performing team: project terminated after initiation, high individual satisfaction with project nonetheless (*stated by D1, confirmed by D2 D3 A)*

[6] For in-depth case description please refer to Appendix VI, Case 6

2.6.2 Teamwork effectiveness

The case data indicate the following pattern regarding teamwork effectiveness:

Table 71: Case 6; Teamwork effectiveness in higher performing team

	Quality of Inter-team Communication	Quality of Information Distribution	Quality of Task Execution	**Overall Teamwork Effectiveness**
Initiation Phase	High *D1 D2 D3 A*	High *D1 D2 D3 A*	High *D1 D2 D3 A*	**High**
Development Phase	NA	NA	NA	NA
Implementation Phase	High *D1 D2 D3 A*	High *D1 D2 D3 A*	High *D1 D2 D3 A*	**High**

Overall, the higher performing team yielded high teamwork effectiveness throughout project execution (Table 71).

Table 72: Case 6; Teamwork effectiveness in lower performing team

	Quality of Inter-team Communication	Quality of Information Distribution	Quality of Task Execution	**Overall Teamwork Effectiveness**
Initiation Phase	High *D1 D2 D3 A*	High *D1 D2 D3 A*	High *D1 D2 D3 A*	**High**
Development Phase	NA	NA	NA	NA
Implementation Phase	NA	NA	NA	NA

Overall, the lower performing team yielded high teamwork effectiveness over one project phase (Table 72).

2.6.3 Task complexity

The case data indicate the following pattern regarding task complexity:

Table 73: Case 6; Task complexity in higher performing team

	Task Predictability	Problem Analyzability	Team Interdependence	**Task Complexity**
Initiation Phase	Moderate *D1 D2 D3 A*	Moderate *D1 D2 D3 A*	High *D1 D2 D3 A*	**Moderate**
Development Phase	NA	NA	NA	NA
Implementation Phase	Low *D1 D2 D3 A*	Low *D1 D2 D3 A*	High *D1 D2 D3 A*	**High**

Overall, the higher performing team operated under varying task complexity ranging from moderate to high (Table 73).

Table 74: Case 6; Task complexity in lower performing team

	Task Predictability	Problem Analyzability	Team Interdependence	**Task Complexity**
Initiation Phase	Low *D1 D2 D3 A*	Low *D1 D2 D3 A*	High *D1 D2 D3 A*	**High**
Development Phase	NA	NA	NA	NA
Implementation Phase	NA	NA	NA	NA

Overall, the lower performing team operated under high task complexity (Table 74).

2.6.4 Propositions regarding formalization of the work process

Higher Task Complexity	**Higher performing team**	**Lower performing team**
P1: Lower formalization of the work process is positively associated with teamwork effectiveness.	Differing data pattern	Differing data pattern
Lower Task Complexity	**Higher performing team**	**Lower performing team**
P2: Higher formalization of the work process is positively associated with teamwork effectiveness.	Differing data pattern	No data pattern

Higher performing team:

Throughout project execution formalization was evident in the form of an online project log (*access to the online project log for demonstration purposes*). The project log served as a collaboration and discussion forum and was accessible by all team members through Lloyds TSB's Intranet. Once team members had entered a password and were granted access to the log, they were able to retrieve information regarding specific task areas. Each task area contained several PDF-files such as project plans, budgets, and memos. The log also allowed users to collaborate with other team members synchronously on several documents. In addition, each task area had its own message board, where team members shared information, posed questions, and contributed ideas. Most importantly, the project log provided a medium for the team manager to forward directives and to control progress (*stated by D1*). The team manager skimmed through each task area on a daily basis and submitted his remarks concerning task execution (*stated by D1 A*). Conversely, the team members posted daily briefs about project progress (*stated by D1 A*). After several weeks of intense

collaboration, the project log contained hundreds of records and dozens of documents, each retrievable by team members when needed. Also, the project log left a trail of evidence for the team manager to track directives and to control project progress (*stated by D1 D2*). In cross-case comparison, the data display a moderately high level of formalization.

One has to comment cautiously on Propositions 1 and 2 since there is no data for the development phase, which was executed solely by the external collaborator. The emerging data pattern differs from the pattern predicted in Proposition 1 and Proposition 2. Complexity fluctuated throughout the project. Contrary to the propositions, the data pattern suggests that formalization remained unaltered throughout the project, despite fluctuations in complexity (Table 75).

Table 75: Case 6; Formalization, complexity and teamwork effectiveness in higher performing team

Initiation Phase	**Development Phase**	**Implementation Phase**
High Formalization: Written directives from team manager and written reports from team members on daily basis	Development handed over to external party	*High Formalization:* Written directives from team manager and written reports from team members on daily basis
Lower task complexity	NA	Higher task complexity
High teamwork effectiveness	NA	High teamwork effectiveness

Lower performing team:

The online project log, as described above, was similarly deployed in the case of the lower performing team (*stated by D1 A*). Interestingly, even the external team members made heavy use of the log and commended on the systems' ability to greatly facilitate teamwork (*stated by D3*). In cross-case comparison, the data display a moderately high level of formalization.

The emerging data pattern differs from the pattern predicted in Proposition 1. The observed data pattern suggests high formalization and effective teamwork in a project phase of high complexity, contradicting Proposition 1. The project was terminated

during the initiation phase. The lack of fluctuations towards lesser complexity allows no inference regarding Proposition 2.

Table 76: Case 6: Formalization, complexity and teamwork effectiveness in lower performing team

Initiation Phase	Development Phase	Implementation Phase
Formalization: Written directives from team manager and written reports from team members on daily basis	NA	NA
High task complexity	NA	NA
High teamwork effectiveness	NA	NA

2.6.5 Propositions regarding centralization of decision-making

Higher Task Complexity	**Higher performing team**	**Lower performing team**
P3: Lower centralization of decision-making is positively associated with teamwork effectiveness.	Differing data pattern	No cohesive data pattern
Lower Task Complexity	**Higher performing team**	**Lower performing team**
P4: Higher centralization of decision-making is positively associated with teamwork effectiveness.	Differing data pattern	No data pattern

Higher performing team

The data suggest a decision-making structure that bears strong resemblance to the data pattern observed in Case 1. That is, minor decisions were directly handled through each member individually without contacting the team manager. Moderately important decisions were presented and explicated to the team manager before a mutually agreed decision was made. Major decisions that could seriously affect the project outcome were collectively addressed in the team's face-to-face meetings (*stated by D1 D2 A*). Also, for particularly important decisions the team manager conferred extensively with senior management (*stated by D1 D2*). Over implementation the team was operating under tremendous time-pressure. To save time the team manager made several major decisions on his own without consulting the

team first (*stated by D1*). In cross-case comparison, the data display a moderately high level of centralization.

Again one has to comment cautiously due to the lack of data over development. The findings suggest patterns of both centralization and decentralization throughout the highly effective project execution. The emerging data pattern differs from the pattern predicted in Proposition 3 and Proposition 4. The observed data pattern suggests higher centralization and effective teamwork in a project phase of higher complexity. Conversely, the data pattern indicates lower centralization and effective teamwork in a project phase of lower complexity (Table 78).

Table 78: Case 6; Centralization, complexity and teamwork effectiveness in higher performing team

Initiation Phase	**Development Phase**	**Implementation Phase**
Lower Centralization: Minor decisions are directly handled through each member without contacting the team manager; Moderately important decisions are explicated to team manager before a mutual agreed decision is made; Major decisions are collectively addressed by the whole team	Development handed over to external party	*Higher Centralization:* Due to time-constraints the team manager makes major decisions on his own without consulting the team members
Lower task complexity	NA	Higher task complexity
High teamwork effectiveness	NA	High teamwork effectiveness

Lower performing team

Decision-making was organized similar to the pattern described above. That is, day-to-day issues were left to the discretion of every team member, while moderately important decisions had to be conferred with the team manager (*stated by D1 A*). Major decisions were collectively addressed by the whole team and required the approval of senior management (*stated by D1 D2*). Since the project was sponsored by several organizations the team manager had to confer with the senior management of all participating parties, a process that sometimes led to delays in decision-making (*stated by D1 D3*). In cross-case comparison, the data display a moderately high level of centralization.

The lack of fluctuations in both centralization and complexity allows no inference regarding Proposition 3 or 4. It is interesting to note, however, that over initiation the data display neither centralization nor decentralization. Instead, the data highlight the importance of a structured and balanced approach towards decision-making.

Table 79: Case 6; Centralization, complexity and teamwork effectiveness in lower performing team

Initiation Phase	Development Phase	Implementation Phase
Centralization: Minor decisions are directly handled through each member without contacting the team manager; Moderately important decisions are explicated to team manager before a mutual agreed decision is made; Major decisions are collectively addressed by the whole team	NA	NA
High task complexity	NA	NA
High teamwork effectiveness	NA	NA

2.6.6 Propositions regarding standardization of communication incidents

Higher Task Complexity	**Higher performing team**	**Lower performing team**
P5: Higher standardization of communication incidents is positively associated with teamwork effectiveness.	Differing data pattern	Corresponding data pattern
Lower Task Complexity	**Higher performing team**	**Lower performing team**
P6: Lower standardization of communication incidents is positively associated with teamwork effectiveness.	Differing data pattern	No data pattern

Higher performing team

Throughout project execution, communication incidents were structured through a predefined communication schedule, which detailed timing and content of team meetings. The communication schedule was retrievable through the online project log (*access to the online project log for demonstration purposes*). Over initiation all

communication incidents were sequenced in firm temporal patterns. That is, the team conducted weekly videoconferences always on the same weekday, at the same time and through the same medium. Since all team members were located in London, albeit at different locations, the team manager arranged for bi-monthly face-to-face meetings held at Lloyds TSB headquarters. These face-to-face meetings also followed strict temporal patterns and were conducted on the first and last Wednesday of the month, at the same time and at the same location. Over implementation the work tasks were highly complex and required intense team interaction (*stated by D1 A*). The team manager therefore eliminated videoconferences in favour of weekly face-to-face meetings (*stated by D1 D3 A*). Yet again, these meetings were conducted always on the same weekday and at the same time. In between personal communication incidents the team communicated through either the online project log or the telephone on ad hoc basis (Table 80). In cross-case comparison, the data display a high level of standardization.

The emerging data pattern differs from the pattern predicted in Proposition 5 and Proposition 6. Complexity fluctuated throughout the project. Contrary to the propositions, the data pattern suggests that standardization remained unaltered throughout the project, despite fluctuations in complexity.

Table 80: Case 6; Standardization, complexity and teamwork effectiveness in higher performing team

Initiation Phase	**Development Phase**	**Implementation Phase**
High Standardization: Equivalent to implementation Communication protocol established, which schedules all personal and impersonal communication incidents within the team	Development handed over to external party	*High Standardization: Equivalent to initiation* Communication protocol schedules all personal communication incidents within the team
Lower task complexity	NA	Higher task complexity
High teamwork effectiveness	NA	High teamwork effectiveness

Lower performing team

Over the early stages of initiation, the team manager conducted three face-to-face meetings with potential team members as well as senior management of all participating organizations (*stated by D1 D2 D3*). These meetings were designed to establish project objectives and to devise the development strategy. Once the parties had overcome initial differences and had agreed on the project outline, the team conducted all further meetings through impersonal communications. That is, the entire team held a two-hours videoconference every Monday morning as well as online discussion sessions three to four times per week (*stated by D1 D3 A*). These communication incidents were structure around a predefined agenda, which was derived out of the project log. In cross-case comparison, the data display a moderately high level of standardization.

The emerging data pattern corresponds to the pattern predicted in Proposition 5. The observed data pattern suggests high standardization and effective teamwork in a project phase of high complexity. The lack of fluctuations towards lesser complexity allows no inference regarding Proposition 6 (Table 81).

Table 81: Case 6; Standardization, complexity and teamwork effectiveness in lower performing team

Initiation Phase	Development Phase	Implementation Phase
High Standardization: Communication protocol established, which schedules impersonal communication incidents within the team	NA	NA
High task complexity	NA	NA
High task effectiveness	NA	NA

2.6.7 Propositions regarding teamwork effectiveness and team performance

	Higher performing team	Lower performing team
P7: Teamwork effectiveness is positively associated with the tangible dimension of team performance.	Corresponding data pattern	Differing data pattern
P8: Teamwork effectiveness is positively associated with the intangible dimension of team performance.	Corresponding data pattern	Differing data pattern

Higher performing team

The emerging data pattern corresponds to Proposition 7 and Proposition 8. All respondents asserted that they perceived teamwork as highly effective throughout the development process. Also, all respondents confirmed that the project met four out of four performance criteria (Table 82).

Table 82: Case 6; Teamwork effectiveness and team performance in higher performing team

Project Performance	Respondent D1	Respondent D2	Respondent D3	Respondent A
(a) Task Outcome: Project on time	Yes	Yes	Yes	Yes
(b) Task Outcome: Project on budget	Yes	Yes	Yes	Yes
(c) Psychosocial Outcome: Individual satisfaction with project	Yes	Yes	Yes	Yes
(d) Psychosocial Outcome: Collective satisfaction with project	Yes	Yes	Not sure	Yes
Perceived Overall Teamwork Effectiveness	High	High	High	High

Lower performing team

The emerging data pattern differs from the pattern predicted in Proposition 7 and Proposition 8. Respondents perceived teamwork as highly effective and voiced great individual satisfaction despite the projects' ultimate failure. As such, the case

illustrates that teamwork might be highly effective throughout project execution and yet the project fails for reasons beyond the teams' control (Table 83).

Table 83: Case 6; Teamwork effectiveness and team performance in lower performing team

Project Performance	Respondent D1	Respondent D2	Respondent D3	Respondent A
(a) Task Outcome: Project on time	NA	NA	NA	NA
(b) Task Outcome: Project on budget	NA	NA	NA	NA
(c) Psychosocial Outcome: Individual satisfaction with project	Yes	Yes	Yes	Yes
(d) Psychosocial Outcome: Collective satisfaction with project	NA	NA	NA	NA
Perceived Overall Teamwork Effectiveness	High	High	High	High

2.6.8 Additional factors of relevance

Table 84 and Table 85 display other relevant factors that were highlighted by respondents.

Please note: Figure 7 provides a case overview of the above analysis.

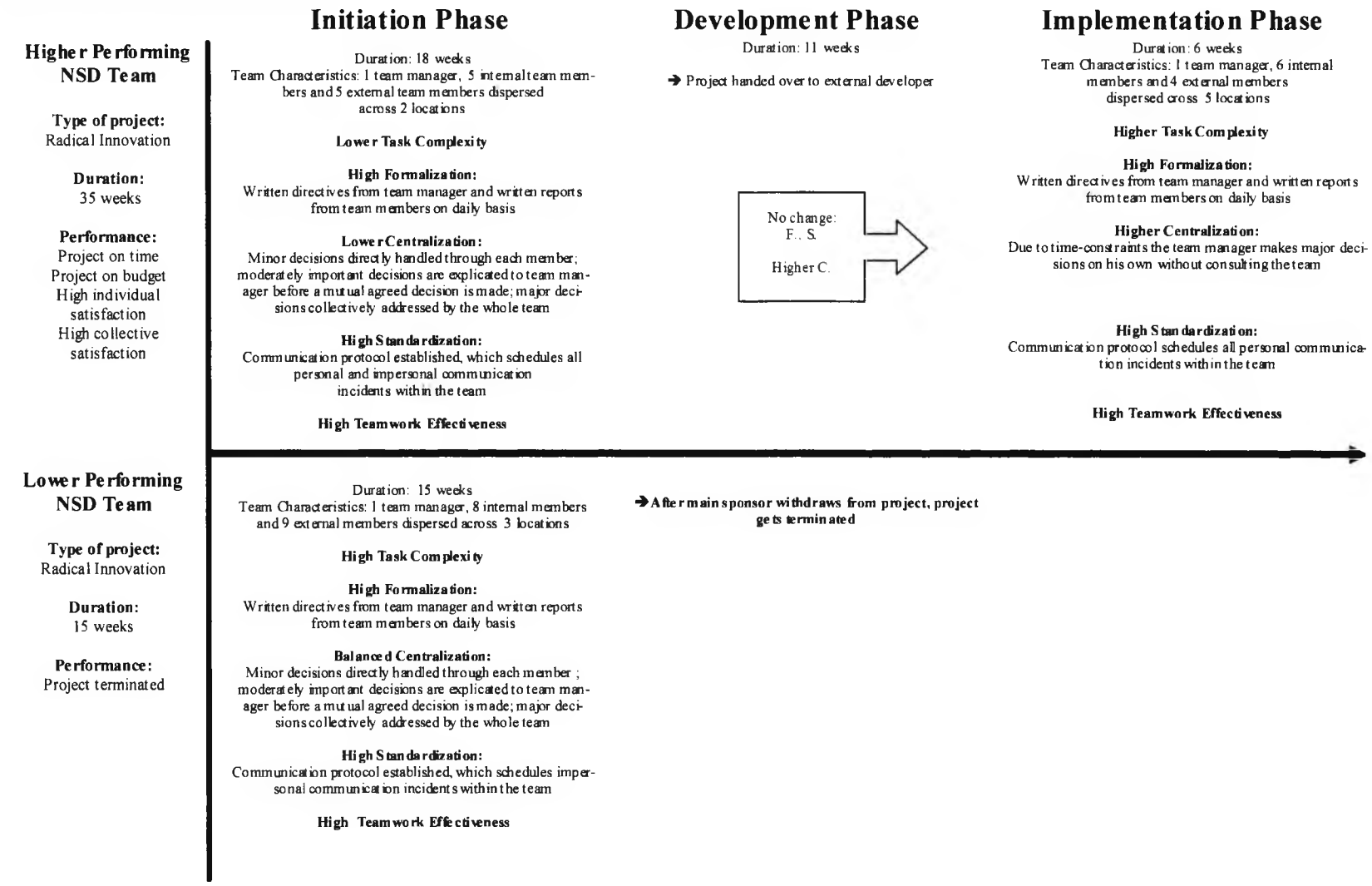
Table 84: Case 6: Additional factors of relevance in high performing team

Internal Factors	
Structure	
Project Level	Small multifunctional team; team size remains constant throughout project; external members involved
Business Level	Hierarchically managed functional departments brought together in multidisciplinary project teams to develop and launch products
Skill	
Project Level	Team involves experienced experts all familiar with virtual teamwork, team manager experienced with virtual teamwork (*positive impact on teamwork effectiveness*)
Business Level	Experts for software development not available in-house, must be externally recruited
Shared Values	
Project Level	Internal team members driven to complete project successfully, external members do participate enthusiastically (*positive impact on teamwork effectiveness*)
Business Level	Innovation is actively supported at the main board level but uncertain market conditions lead to risk-aversion
Strategy	
Project Level	Ultimate objective is to develop a high quality service that is precisely tailored to the client's needs
Business Level	Innovation is key to business strategy but uncertain market conditions delay many projects in the pipeline
Style	
Project Level	Team manager stands one hundred percent behind the project, which is his idea; team manager knows most participating members very well therefore adopts at first a 'hands off' approach; when work process gets highly complex he changes his style to very 'hands on'.
Business Level	After much hesitations senior management approves project proposal and allocates sufficient resources
Staff	
Project Level	Team comprises internal and external experts, all internal members well acquainted, all members accessible and available
Business Level	Major redundancies in the past reduced the pool of internal talent available
External Factors	NA

Table 85: Case 6: Additional factors of relevance in low performing team

Internal Factors	
Structure	
Project Level	Medium-sized multifunctional team; team size remains constant throughout project; external members involved client involved in development and acts as sponsor
Business Level	Hierarchically managed functional departments brought together in multidisciplinary project teams to develop and launch products
Skill	
Project Level	Team involves experienced experts all familiar with virtual teamwork, team manager experienced with virtual teamwork (*positive impact on teamwork effectiveness*)
Business Level	Experts for software development not available in-house, must be externally recruited
Shared Values	
Project Level	Initially all team members driven to complete project successfully, later the client withdraws from project due to internal reasons
Business Level	Innovation is actively supported at the main board level but uncertain market conditions lead to risk-aversion
Strategy	
Project Level	Ultimate objective is to develop a high quality service that is precisely tailored to the client's needs
Business Level	Innovation is key to business strategy but uncertain market conditions delay many projects in the pipeline
Style	
Project Level	Team manager stands one hundred percent behind the project which is his idea; team manager is very much involved in day-to-day activities, very 'hands on' (*positive impact on teamwork effectiveness*)
Business Level	Senior management welcome project proposal and gladly approve, after complications they insist on project termination
Staff	
Project Level	Team comprises internal and external experts, not all members acquainted, at first all members accessible and available, later the client withdraws is unavailable and inaccessible
Business Level	Major redundancies in the past reduced the pool of internal talent available
External Factors	Client terminates project for reasons beyond the team manager's control (*negative impact on team perfromance*)

Figure.7: Case 6 Analysis Overview



2.7 Case 7: Bank of Scotland

Bank of Scotland, Integrated Finance Unit [7]

Interviewees:

Managing Director (MD1)
Integrated Finance Unit
(Team Manager)

Associate (A1)
Integrated Finance Unit

Associate (A2)
Integrated Finance Unit

Managing Director (MD2)
Structured Finance Unit

Documentation: Project proposals, communication protocol, other

Higher performing team *(informants MD1 MD2 A1)*

Lower performing team *(informants MD1 A1 A2)*

2.7.1 Team performance

The case data indicate the following pattern regarding overall team performance:

Higher performing team: project on time, high individual satisfaction with project, high collective satisfaction with project *(stated by MD1, confirmed by MD2 A1)*

Lower performing team: project delayed, high individual satisfaction with project, client terminates project *(stated by MD1, confirmed by A1 A2)*

[7] For in-depth case description please refer to Appendix VI, Case 7

2.7.2 Teamwork effectiveness

The case data indicate the following pattern regarding teamwork effectiveness:

Table 86: Case 7; Teamwork effectiveness in higher performing team

	Quality of Inter-team Communication	Quality of Information Distribution	Quality of Task Execution	**Overall Teamwork Effectiveness**
Initiation Phase	Moderate M*D1 MD2 A1*	High M*D1 MD2 A1*	High M*D1 MD2 A1*	**High**
Development Phase	Moderate M*D1 MD2 A1*	High M*D1 MD2 A1*	High M*D1 MD2 A1*	**High**
Implementation Phase	Moderate M*D1 MD2 A1*	High M*D1 MD2 A*	High M*D1 MD2 A1*	**High**

Overall, the higher performing team yielded high teamwork effectiveness throughout project execution (Table 86).

Table 87: Case 7; Teamwork effectiveness in lower performing team

	Quality of Inter-team Communication	Quality of Information Distribution	Quality of Task Execution	**Overall Teamwork Effectiveness**
Initiation Phase	High M*D1 A1 A2*	High M*D1 A1 A2*	High M*D1 A1 A2*	**High**
Development Phase	NA	NA	NA	NA
Implementation Phase	NA	NA	NA	NA

Overall, the lower performing team yielded high teamwork effectiveness over the initiation phase (Table 87).

2.7.3 Task complexity

The case data indicate the following pattern regarding task complexity:

Table 88: Case 7; Task complexity in higher performing team

	Task Predictability	Problem Analyzability	Team Interdependence	**Task Complexity**
Initiation Phase	Moderate M*D1 MD2 A1*	Moderate M*D1 MD2 A1*	High M*D1 MD2 A 1*	**Moderate**
Development Phase	Low M*D1 MD2 A1*	Low M*D1 MD2 A1*	High M*D1 MD2 A 1*	**High**
Implementation Phase	Moderate M*D1 MD2 A1*	Moderate M*D1 MD2 A1*	High M*D1 MD2 A1*	**Moderate**

Overall, the higher performing team operated under varying task complexity ranging from moderate to high (Table 88).

Table 89: Case 7: Task complexity in lower performing team

	Task Predictability	Problem Analyzability	Team Interdependence	**Task Complexity**
Initiation Phase	Low *MD1 A1 A2*	Low *MD1 A1 A2*	High *MD1 A1 A2*	**High (1)**
Development Phase	NA	NA	NA	NA
Implementation Phase	NA	NA	NA	NA

Overall, the lower performing team operated under high task complexity (Table 89). Respondents provided the following additional information regarding overall work process complexity in the lower performing team:

(1) Initiation Phase: Respondents asserted that a highly volatile physical team structure added to perceived work process complexity. That is, the project comprised several team members who joined the project only briefly to execute a specific project task. Once the task was completed these experts departed from the project after few days. This continuous entering and exiting of team members created a highly dynamic work environment, which the incumbent team members found disturbing and confusing (*stated by A1 A2*).

2.7.4 Propositions regarding formalization of the work process

Higher Task Complexity	**Higher performing team**	**Lower performing team**
P1: Lower formalization of the work process is positively associated with teamwork effectiveness.	Differing data pattern	Differing data pattern
Lower Task Complexity	**Higher performing team**	**Lower performing team**
P2: Higher formalization of the work process is positively associated with teamwork effectiveness.	Differing data pattern	No data pattern

Higher performing team:

While complexity fluctuated throughout project execution, the level of formalization remained unaltered. Throughout the project formalization was limited to a written project proposal, the so-called 'Agenda'. The agenda contained five chapters, each of which addressed one project area. The first chapter discussed regulatory requirements,

the second chapter contained task definitions and value propositions, the third chapter outlined the project execution framework, the fourth chapter detailed roles and responsibilities of team members, the last chapter described overall project objectives (*agenda as evidence*). The agenda was devised co-jointly by the entire team over the early stages of the initiation phase (*stated by MD1 MD2 A1*). Once completed, the agenda was a comprehensive document of almost 300 pages that outlined each project area with some detail. According to team members, the agenda provided valuable guidance throughout the project (*stated by MD2 A1*). However, apart from the bi-monthly updated agenda there were no formalized lines of directing or reporting in place (*stated by MD1 MD2 A1*). Instead, the team manager conferred with each team member on ad hoc basis when the need arose (*stated by MD1*). In cross-case comparison, the data display a low level of formalization. It is interesting to note that the present case is the only higher performing team, which displays a pattern of continuously low formalization. The question emerges, what distinguishes the present team from the other teams? The data indicate two differences: First, the team size is small and comprises team members internal to the developer organization who have cooperated before. Second, the team configuration is stable throughout the project, with the same group of people collaborating during each project phase. It is then suggested that less formalization yields high effectiveness when the team is small, settled, and comprises team members who are familiar with the work as well as with each other.

The emerging data pattern differs from the pattern predicted in Proposition 1 and Proposition 2. Complexity fluctuated throughout the project. Contrary to the propositions, the data pattern suggests that formalization remained unaltered low throughout the project, despite fluctuations in complexity (Table 90).

Table 90: Case 7: Formalization, complexity and teamwork effectiveness in higher performing team

Initiation Phase	Development Phase	Implementation Phase
Formalization *No fluctuations* Project agenda established, which broadly defines objectives and task areas, but no formalized lines of directing or reporting in place	*Formalization* *No fluctuations* As in previous phase	*Formalization* *No fluctuations* As in previous phase
Lower task complexity	Higher task complexity	Lower task complexity
High teamwork effectiveness	High teamwork effectiveness	High teamwork effectiveness

Lower performing team:

Over initiation the team was intricately structured comprising 12 internal members and 28 external members, dispersed across 5 locations. In addition, the physical team configuration was highly volatile with varying functions being in charge of different project areas. To ensure effective teamwork the team managers introduced formal lines of reporting and directing, which respondents described as 'stronger than usual' (*stated by A1 A2*). That is, the team managers asked for brief progress reports submitted by each project function in writing and on a weekly basis. These reports then were combined into one document, supplemented with directions from the team managers and eventually distributed throughout the team by e-mail (*stated by MD1 A1 A2*). The reports supported the project proposal by featuring more detailed, up-date information about project progress. In particular, they formed a valuable source of reference for team members who required information about project areas other than their own (*stated by A2*). Also, the team managers utilized the reports to evaluate project progress and to constantly revise the development strategy (*stated by MD1*). Overall, the data indicate strong patterns of formalization. In particular, compared with the higher performing team, the data indicates higher formalization. This data pattern strengthens the speculation that lower formalization yields high teamwork effectiveness when the team is small and maintains a stable physical team structure. While the higher performing team operated under relatively stable conditions and yielded high effectiveness with comparatively low formalization, the lower performing team was characterized by a large team size and a highly unstable team configuration. Accordingly, complexity was perceived as particularly high and the team managers applied higher formalization to ensure effective coordination of the

work process (Table 91). In cross-case comparison, the data display a moderately high level of formalization.

The observed data pattern suggests high formalization and effective teamwork in a project phase of high complexity, contradicting Proposition 1. The project was terminated during the initiation phase. The lack of fluctuations towards lesser complexity allows no inference regarding Proposition 2.

Table 91: Case 7; Formalization, complexity and teamwork effectiveness in lower performing team

Initiation Phase	Development Phase	Implementation Phase
High Formalization Written directives from team manager and written reports from team members on weekly basis	NA	NA
High task complexity	NA	NA
High teamwork effectiveness	NA	NA

2.7.5 Propositions regarding centralization of decision-making

Higher Task Complexity	**Higher performing team**	**Lower performing team**
P3: Lower centralization of decision-making is positively associated with teamwork effectiveness.	Differing data pattern	Differing data pattern
Lower Task Complexity	**Higher performing team**	**Lower performing team**
P4: Higher centralization of decision-making is positively associated with teamwork effectiveness.	Differing data pattern	No data pattern

Higher performing team

The team agreed on a structured process of decision-making at the start of the project (*stated by MD1 A1*). Typically, the whole team conferred on particular relevant issues before determining two to four possible solutions. The team manager then discussed the potential solutions with the client, making a recommendation. The final decision, however, rested with the client (*stated by MD1 MD2*). Less important issues were

collectively addressed by the team before a collective decision was made (*stated by MD1 MD2 A1*). To speed up the decision-process over the highly complex development phase, decision-making on minor to moderately important issues was left to the discretion of each individual team member (*stated by MD1 A1*). Knowing each member for years the team manager trusted the sound judgement of his colleagues and appreciated their expertise (*stated by MD1*). Decision-making on major issues was still addressed collectively but the final decision rested with the client. However, to reach conclusions on risky decision that not only affected the client but also the Bank, the team manager conferred with senior management including the Head of Integrated Finance and the Head of Corporate Banking (*stated by MD1*). This decision-making structure remained in place throughout development and implementation. Overall, the data indicate patterns of moderate centralization to the extent that the team conferred collectively about important issues but left the final decision to a central authority. As such, the data indicate a balanced approach towards decision-making, with strong patterns of both, centralization and decentralization. The data further suggest that centralization was adapted in relation to the importance and complexity of the decision being made. That is, minor decisions were directly handled through each member without contacting the team manager; moderately important decisions were made collectively by the entire team; major decisions rested with the client and/or senior management. The data also indicate that more important decisions emerged over particular complex project phases. For example, over development senior management frequently engaged in centralized decision-making to decide upon several highly important issues. However, over the less complex initiation and implementation phase, less important issues emerged and the team engaged in less centralized decision-making. These findings then suggest an association between complexity, type of decision, and the pattern of centralization. That is, higher complexity leads to many important decisions being made, which results in higher centralization. Conversely, when complexity is less only few major issues need to be addressed and decision-making is more consensus-driven and less centralized (Table 92). In cross-case comparison, the data display a moderate level of centralization.

The emerging data pattern differs from the pattern predicted in Proposition 3 and Proposition 4. The observed data pattern suggests higher formalization and effective teamwork in project phases of higher complexity. Conversely, the data pattern

indicates lower formalization and effective teamwork in project phases of lower complexity.

Table 92: Case 7; Centralization, complexity and teamwork effectiveness in higher performing team

Initiation Phase	Development Phase	Implementation Phase
Lower Centralization: Minor decisions are directly handled through each member without contacting the team manager; Moderately important decisions are made collectively by the entire team; Major decisions are made by the client or/and senior management	*Higher Centralization:* As in previous phase, but more important decisions emerge that lead to more centralized decision-making	*Lower Centralization:* As in previous phase, but less important decisions emerge that lead to less centralized decision-making
Lower task complexity	Higher task complexity	Lower task complexity
High teamwork effectiveness	High teamwork effectiveness	High teamwork effectiveness

Lower performing team

Decision-making was organized similar to the pattern described above. While day-to-day issues were left to the discretion of each team member, moderately important decisions were collectively addressed by the entire team. Decision-making on major issues was centred on senior management (*stated by MD1 A1 A2*). Since the project was executed co-jointly with another organization decision-making proved to be a slow and strenuous process (*stated by MD1 A1 A2*). In particular, the project was under supervision of two team managers and both had to be consulted on major issues. This procedure proved to be very time-consuming with team members first contacting the team managers individually and then waiting for a response until the two managers had conferred with each other (*stated by A1 A2*). The process was additionally prolonged for very important decisions. In this case, the team managers had to confer with senior management of each developer organization (*stated by MD1*). One such occasion arose towards the end of the initiation phase when the team managers had to contact senior management to reach agreement on a particularly important decision. However, partly due time constraints and partly due to indecisiveness, senior management was unable to reach rapid conclusions, deferring project development for three weeks (*stated by MD1*). In the meantime, the client had negotiated a better funding deal with a competitor and, using the delay as an excuse,

withdrew from the project (*stated by MD1 A1 A2*). Similar to the higher performing team, the data indicate a balanced approach towards decision-making with centralization being adapted in relation to the importance and complexity of the decision being made. However, the case also illustrates that an overly complex decision-making process might result in damaging project delays. Further, decision-making centred on the wrong authority, one that is too detached from the actual project execution, might lead to deferred and inadequate judgments (Table 93). In cross-case comparison, the data display a moderate level of centralization.

The observed data pattern suggests high formalization and effective teamwork in a project phase of high complexity, differing from Proposition 1. The project was terminated during the initiation phase. The lack of fluctuations towards lesser complexity allows no inference regarding Proposition 2.

Table 93: Case 7; Centralization, complexity and teamwork effectiveness in lower performing team

Initiation Phase	Development Phase	Implementation Phase
Centralization: Minor decisions are directly handled through each member without contacting the team managers; Moderately important decisions are made collectively by the entire team; Major decisions are made by senior management, but senior management is slow in decision-making, which gives client excuse to withdraw from project and to switch to competitor	NA	NA
High task complexity	NA	NA
High teamwork effectiveness	NA	NA

2.7.6 Propositions regarding standardization of communication incidents

Higher Task Complexity	**Higher performing team**	**Lower performing team**
P5: Higher standardization of communication incidents is positively associated with teamwork effectiveness.	Differing data pattern	Corresponding data pattern
Lower Task Complexity	**Higher performing team**	**Lower performing team**
P6: Lower standardization of communication incidents is positively associated with teamwork effectiveness.	Differing data pattern	No data pattern

Higher performing team

Throughout project execution, most communication incidents evolved naturally out of the work process without being formally structured. That is, the team communicated through telephone or e-mail on ad hoc basis (*stated by MD1 A1*). Occasionally, the team also deployed teleconferences to enable synchronous interaction between several members (*stated by MD1 A1*). However, these teleconferences were scheduled on short notice and followed neither a predefined agenda nor a temporal pattern. The only exception formed face-to-face meetings that incorporated the client. These personal communication incidents were sequenced in strict temporal patterns that were always held at the same weekday, the same time, and the same location (*stated by MD1 MD2 A1*). The meetings were always conducted at the client's site and served as a platform to discuss the project requirements in detail. To structure the meetings, the team designed a predefined agenda and deployed detailed checklists and questionnaires (*stated by MD1 MD2 A1*). In cross-case comparison, the data display a low level of standardization. Only those team meetings involving the client were planned and sequenced through intensive scheduling. Again, it is suggested that the team was able to yield high effectiveness without strong standardization because the team configuration was small, stable, and the team members were familiar with the task as well as with their peers.

The emerging data pattern differs from the pattern predicted in Proposition 5 and Proposition 6. Complexity fluctuated throughout the project. Contrary to the

propositions, the data pattern suggests that standardization remained unaltered throughout the project, despite fluctuations in complexity (Table 93).

Table 93: Case 7; Standardization, complexity and teamwork effectiveness in higher performing team

Initiation Phase	Development Phase	Implementation Phase
Standardization: No fluctuations Communication incidents within the team evolve naturally out of the workflow without being particularly planned and structured; Face-to-face meetings are conducted to involve the client and are intensively scheduled	*Standardization: No fluctuations* As in previous phase	*Standardization: No fluctuations* As in previous phase
Lower task complexity	Higher task complexity	Lower task complexity
High teamwork effectiveness	High teamwork effectiveness	High teamwork effectiveness

Lower performing team

The lower performing team was characterized by a large team size and a highly volatile physical team structure. The team managers therefore decided to arrange initial face-to-face meetings to make the team members acquainted and to discuss project execution (*stated by MD1*). Throughout the initiation phase, the team conducted three lengthy face-to-face meetings. These were structured along a predefined agenda, which outlined the areas and stages of development (*stated by MD1 A1 A2*). Once the project specifications were established, the team continued to co-operate through impersonal communications. That is, the two team managers co-jointly drafted a communication schedule detailing the time and date of videoconferences, which had to be attended by all team members (*stated by MD1*). Typically, the team conducted two videoconferences per week always on Tuesday morning and Friday afternoon. In cross-case comparison, the data display a high level of standardization (Table 94).

The observed data pattern suggests high standardization and effective teamwork in a project phase of high complexity, corresponding to Proposition 5. The project was terminated during the initiation phase. The lack of fluctuations towards lesser complexity allows no inference regarding Proposition 6.

Table 94: Case 7: Standardization, complexity and teamwork effectiveness in lower performing team

Initiation Phase	Development Phase	Implementation Phase
Standardization: Communication protocol established, which schedules personal and impersonal communication incidents within the team	NA	NA
High task complexity	NA	NA
High teamwork effectiveness	NA	NA

2.7.7 Propositions regarding teamwork effectiveness and team performance

	Higher performing team	**Lower performing team**
P7: Teamwork effectiveness is positively associated with the tangible dimension of team performance.	Corresponding data pattern	Differing data pattern
P8: Teamwork effectiveness is positively associated with the intangible dimension of team performance.	Corresponding data pattern	Differing data pattern

Higher performing team

Table 95: Case 7: Teamwork effectiveness and team performance in higher performing team

Project Performance	**Respondent MD1**	**Respondent MD2**	**Respondent A1**
(a) Task Outcome: Project on time	Yes	Yes	Yes
(b) Task Outcome: Project on budget	NA	NA	NA
(c) Psychosocial Outcome: Individual satisfaction with project	Yes	Yes	Yes
(d) Psychosocial Outcome: Collective satisfaction with project	Yes	Not sure	Yes
Perceived Overall Teamwork Effectiveness	High	High	High

The emerging data pattern corresponds to Proposition 7 and Proposition 8. All respondents asserted that they perceived teamwork as highly effective throughout the development process. Also, all respondents confirmed that the project met three out of four performance criteria (Table 95). Please note that the team operated without a formal project budget.

Lower performing team

Similar to Case 6, respondents perceived teamwork as highly effective and voiced great individual satisfaction despite the projects' ultimate failure. Proposition 7 is therefore strengthened. However, despite high teamwork effectiveness the project was delayed and did not meet the task-related performance criteria of 'being on time'. This weakens Proposition 8. While the project delay ultimately led to the project's termination, it should be noted that the delay was caused by factors beyond the team's control. As such, the case illustrates that project failure might occur despite high teamwork effectiveness (Table 96).

Table 96: Case 7; Teamwork effectiveness and team performance in lower performing team

Project Performance	**Respondent MD1**	**Respondent A1**	**Respondent A2**
(a) Task Outcome: Project on time	No	No	No
(b) Task Outcome: Project on budget	NA	NA	NA
(c) Psychosocial Outcome: Individual satisfaction with project	Yes	Yes	Yes
(d) Psychosocial Outcome: Collective satisfaction with project	Not sure	Not sure	Not sure
Perceived Overall Teamwork Effectiveness	High	High	High

2.7.8 Additional factors of relevance

Table 97 and Table 98 display other relevant factors that were highlighted by respondents.

Please note: Figure 8 provides a case overview of the above analysis.

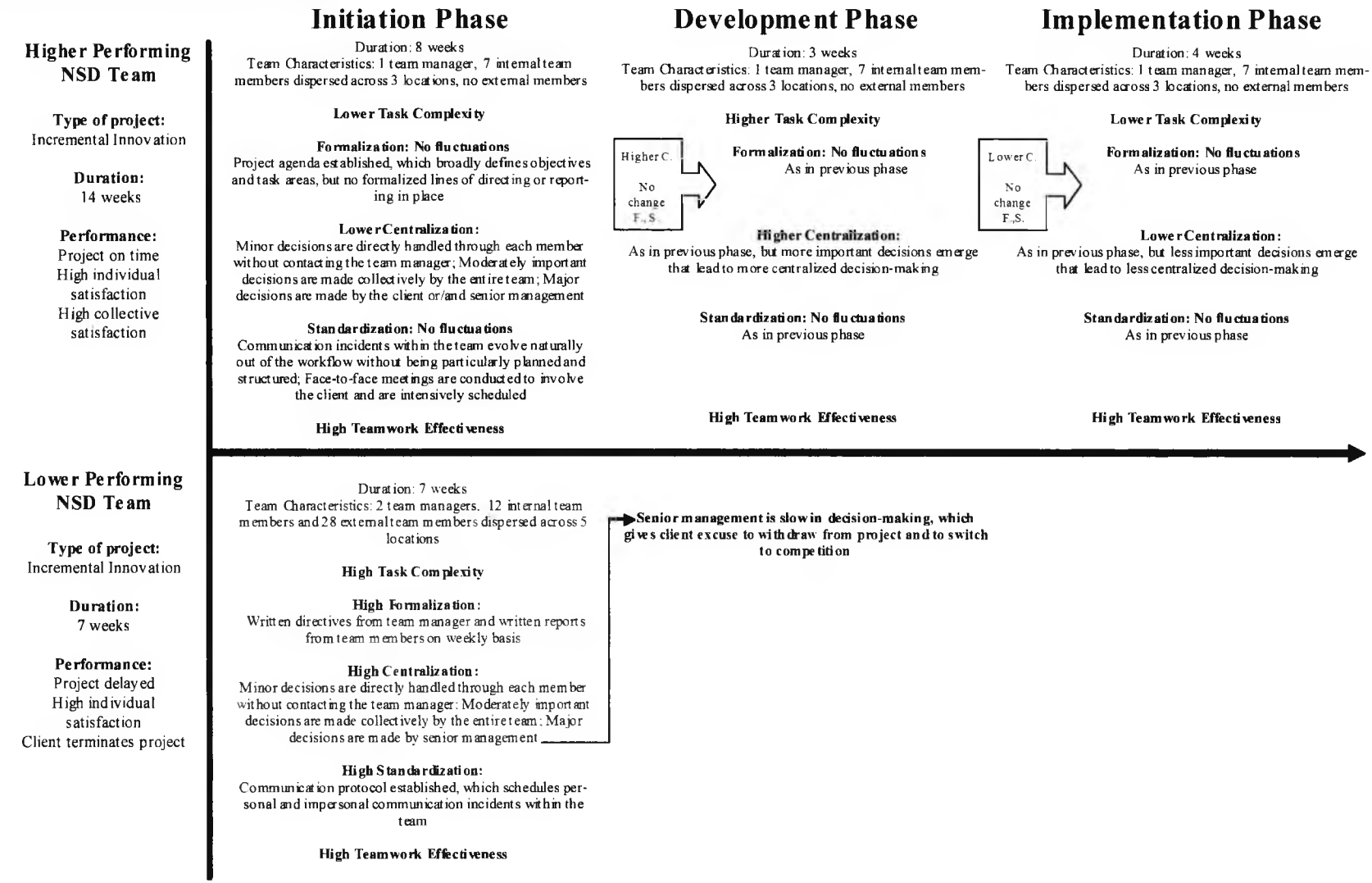
Table 97: Case 7: Additional factors of relevance in high performing team

Internal Factors	
Structure	
Project Level	Small multifunctional team; team size remains constant throughout project; external members involved
Business Level	Flat and functional business structure with relatively few formal hierarchies
Skill	
Project Level	Team involves experienced experts all familiar with virtual teamwork, team manager experienced with virtual teamwork (*positive impact on teamwork effectiveness*)
Business Level	Functional experts are available, all staff adept with virtual teamwork
Shared Values	
Project Level	Internal team members driven to complete project successfully (*positive impact on teamwork effectiveness*)
Business Level	Business culture is open, friendly, and supportive for innovation with tolerance for occasional failure
Strategy	
Project Level	Objective is to deliver an innovative, high quality service on time and to the client's satisfaction
Business Level	Innovation not considered as particularly important to business strategy
Style	
Project Level	Team manager adopts a very 'hands on' and very organized style to enable effective virtual teamwork, he insist that all internal team members are full-time deployed for the project (*positive impact on teamwork effectiveness*)
Business Level	Senior management participates in the initiation phase of the project, then hands the project over to the team manager; senior management is continuously updated on progress and contacted for major decisions
Staff	
Project Level	Team comprises internal and external experts, all internal members well acquainted, all members accessible and available (*positive impact on teamwork effectiveness*)
Business Level	Rich pool of internal talent available, external recruitment occurs only for highly specialized tasks
External Factors	NA

Table 98: Case 7: Additional factors of relevance in low performing team

Internal Factors	
Structure	
Project Level	Large multifunctional team; team involves external members; many different functions, hierarchical levels and experts involved, many external members involved (*increases work process complexity)*
Business Level	Flat and functional business structure with relatively few formal hierarchies
Skill	
Project Level	Team involves experienced experts all familiar with virtual teamwork, team manager experienced with virtual teamwork (*positive impact on teamwork effectiveness*)
Business Level	Functional experts are available, all staff adept with virtual teamwork
Shared Values	
Project Level	All team members are fully committed to the project (*positive impact on teamwork effectiveness*)
Business Level	Business culture is open, friendly, and supportive for innovation with tolerance for occasional failure
Strategy	
Project Level	Objective is to deliver a product that is mutual beneficial to all parties involved
Business Level	Continuous innovation is key to business strategy and seen as an opportunity to create long-term relationships with clients
Style	
Project Level	Team manager shares management role with external partner; both adopt a very 'hands on' approach to enable efficient virtual teamwork (*positive impact on teamwork effectiveness*)
Business Level	Senior management initiates project then charges team manager with development; senior management insists to be contacted for major decisions but is not easily accessible; communication with senior management is slow (*negative impact on team performance*)
Staff	
Project Level	Team comprises internal and external experts, all internal members well acquainted, all members accessible and available
Business Level	Rich pool of internal talent available, external recruitment occurs only for highly specialized tasks
External Factors	Client terminates project (*negative impact on team performance*)

Figure 8: Case 7 Analysis Overview



2.8 Case 8: Deutsche Bank

Deutsche Bank, DB Capital Partners [8]

Interviewees:

Chief Operation Officer (COO)
Deutsche Bank

Managing Director (MD1)
DB Capital Partners London
(Team Manager)

Associate (A)
DB Capital Partners London

Managing Director (MD2)
DB Capital Mezzanine Partners
London

Managing Director (MD3)
DB Capital Private Equity London

Documentation: Project proposals, extract of communication schedule, other

Higher performing team *(informants MD1, A, MD3)*

Lower performing team *(informants MD1, A, MD2)*

Informant for background information: *COO*

2.8.1 Team performance

The case data indicate the following pattern regarding team performance:

Higher performing team: project on time, project on budget, moderate individual satisfaction with project, moderate collective satisfaction with project (*stated by MD1, confirmed by A, MD3)*

Lower performing team: high individual satisfaction with project, client terminates project (*stated by MD1, confirmed by A, MD2)*

[8] For in-depth case description please refer to Appendix VI, Case 8

2.8.2 Teamwork effectiveness

The case data indicate the following pattern regarding teamwork effectiveness:

Table 99: Case 8; Teamwork effectiveness in higher performing team

	Quality of Inter-team Communication	Quality of Information Distribution	Quality of Task Execution	**Overall Teamwork Effectiveness**
Initiation Phase	High *MD1 MD3 A*	High *MD1 MD3 A*	High *MD1 MD3 A*	**High**
Development Phase	Moderate *MD1 MD3 A*	Low *MD1 MD3 A*	High *MD1 MD3 A*	**Moderate**
Implementation Phase	High *MD1 MD3 A*	High *MD1 MD3 A*	High *MD1 MD3 A*	**High**

Overall, the higher performing team yielded varying teamwork effectiveness throughout project execution, ranging from high to moderate (Table 99).

Table 100: Case 8; Teamwork effectiveness in lower performing team

	Quality of Inter-team Communication	Quality of Information Distribution	Quality of Task Execution	**Overall Teamwork Effectiveness**
Initiation Phase	High *MD1 A MD2*	High *MD1 A MD2*	High *MD1 A MD2*	**High**
Development Phase	NA	NA	NA	NA
Implementation Phase	NA	NA	NA	NA

Overall, the lower performing team yielded high teamwork effectiveness over the initiation phase (Table 100).

2.8.3 Task complexity

The case data indicate the following pattern regarding task complexity:

Table 101: Case 8; Task complexity in higher performing team

	Task Predictability	Problem Analyzability	Team Interdependence	**Task Complexity**
Initiation Phase	Moderate *MD1 MD3 A*	Moderate *MD1 MD3 A*	High *MD1 MD3 A*	**Moderate**
Development Phase	Low *MD1 MD3 A*	Low *MD1 MD3 A*	High *MD1 MD3 A*	**High (1)**
Implementation Phase	Low *MD1 MD3 A*	Low *MD1 MD3 A*	High *MD1 MD3 A*	**High (2)**

Overall, the higher performing team operated under varying task complexity ranging from moderate to high (Table 101). Respondents provided the following additional

information regarding overall work process complexity in the higher performing team:

(1) Development Phase: Due to several unforeseen complications with the evaluation of the client's assets portfolio, the project timetable was delayed for two weeks. With the project delayed and the team joined by additional external members, work process complexity was perceived as very high. In particular, the initial cooperation between the internal and external divisions proved complicated with some team members not attending meetings or not returning phone calls and e-mails in a timely manner (*stated by MD1 MD3*).

(2) Implementation Phase: Similar to Case 3, Case 4 and Case 7, respondents asserted that a highly volatile physical team structure added to perceived work process complexity. The team configuration was deemed volatile to the extent that various experts from diverse functional areas joined the team for a short period of time. Once these experts had completed their assignment they departed from the project after few days of intense collaboration. It proved difficult for the core team members to incorporate the many changing collaborators into the team's daily work processes (*stated by MD1 A*).

Table 102: Case 8; Task complexity in lower performing team

	Task Predictability	Problem Analyzability	Team Interdependence	**Task Complexity**
Initiation Phase	Low *MD1 A MD2*	Low *MD1 A MD2*	High *MD1 A MD2*	**High (1)**
Development Phase	NA	NA	NA	NA
Implementation Phase	NA	NA	NA	NA

Overall, the lower performing team operated under high task complexity (Table 102). Respondents provided the following additional information regarding overall work process complexity in the lower performing team:

(1) Initiation Phase: Similar to Case 2, Case3 and Case 5, respondents asserted that overall work process complexity was particularly high because of time-constraints that pressured the team to deliver fast results (*stated by MD2 A*).

2.8.4 Propositions regarding formalization of the work process

Higher Task Complexity	Higher performing team	Lower performing team
P1: Lower formalization of the work process is positively associated with teamwork effectiveness.	Proposition is weakened	Neutral
Lower Task Complexity	**Higher performing team**	**Lower performing team**
P2: Higher formalization of the work process is positively associated with teamwork effectiveness.	Proposition is weakened	Neutral

Higher performing team:

Respondents asserted that for virtual teamwork the work process was stronger formalized than for traditional, departmental project work (*stated by MD1 A MD3*). That is, each project function had to distribute a brief, written progress report by e-mail to all members and to the client on a weekly basis (*stated by MD1 A MD3*). Conversely, the team manager circulated instruction to his team every morning by e-mail, detailing the most pressing issues at hand and commenting on general progress. These instructions varied in detail according to the complexity and importance of the current project task as well as the overall project progress. For example, when the team was executing a project stage that was less complex and overall progress was satisfactorily, the team manager's memos were limited to brief advice. However, when the project stage was difficult and overall progress was slow, the memos contained several pages of detailed instructions (*stated by MD1 A*). Over development, the team manager continuously distributed daily memos and now requested daily progress reports from each project function. The newly joined, external team members, however, submitted reports infrequently and delayed, which the internal, incumbent members perceived as highly disturbing (*stated by MD1 A*). For the implementation phase the team size was reduced to 5 core members. However, approximately 20 non-core members participated sporadically, many joining the project for only a short duration to execute an expert task. To coordinate the participation of the many non-core members, the team manager requested written reports from each collaborator to be submitted after task execution. Conversely, the team manager circulated detailed progress reports throughout the entire team on a

daily basis. Overall the data indicate that strong formalization appears to yield teamwork effectiveness to the extent that the team size is large and the team is intricately structured comprising various functions, locations, and hierarchies. However, the case also demonstrates that strong formalization needs to be carefully implemented. Similar to Case 4, at the start of the project the team manager established strong lines of formalization, which were mutually agreed with all internal team members. However, once external members joined the team the existing lines of formalization were imposed on them rather than newly negotiated. Apparently, such authoritative conduct turned into a source of conflict and caused the external members to infringe (Table 103). In cross-case comparison, the data display a high level of formalization.

Task complexity fluctuated throughout the project. Contrary to the propositions, formalization remained unaltered throughout the entire development process, despite fluctuations in task complexity. Proposition 1 and Proposition 2 are therefore weakened.

Table 103: Case 8: Formalization, complexity and teamwork effectiveness in higher performing team

Initiation Phase	Development Phase	Implementation Phase
Formalization: *No fluctuations* Every project function has to submit a brief, written progress report on weekly basis; team manager circulates instructions every morning through e-mail	*Formalization:* *No fluctuations* As in previous phase, but progress reports now filed on daily basis	*Formalization:* *No fluctuations* As in previous phase
Moderate task complexity	High task complexity	High task complexity
High teamwork effectiveness	Moderate teamwork effectiveness	High teamwork effectiveness

Lower performing team:

To structure the work process, the team manager established three telephone-conferences per day with all team members participating. These meetings were called 'snap-shots', designed as very brief and very focused incidents that addressed the most important issues at hand (*stated by MD1 A MD2*). To keep the team focused, the team manager tasked an assistant with drafting a structured agenda prior to every

meeting. That is, the assistant created the agenda in close cooperation with the team manager and then distributed the document with illustrating material one hour before every meeting through e-mail (*stated by MD1 A*). In that way, all members were able to prepare for the meeting by formulating questions and contemplating suggestions (*stated by MD1 A MD2*). In cross-case comparison, the data display a high level of formalization (Table 104).

The case data strengthen the assertion that high complexity necessitates formalized lines of directing and reporting to facilitate teamwork. However, the lack of fluctuations in both formalization and complexity allows no inference regarding Proposition 1 or 2.

Table 104: Case 8; Formalization, complexity and teamwork effectiveness in lower performing team

Initiation Phase	Development Phase	Implementation Phase
Formalization Written agenda distributed throughout the team three times a day	NA	NA
High task complexity	NA	NA
High teamwork effectiveness	NA	NA

2.8.5 Propositions regarding centralization of decision-making

Higher Task Complexity	**Higher performing team**	**Lower performing team**
P3: Lower centralization of decision-making is positively associated with teamwork effectiveness.	Proposition is weakened	Neutral
Lower Task Complexity	**Higher performing team**	**Lower performing team**
P4: Higher centralization of decision-making is positively associated with teamwork effectiveness.	Proposition is weakened	Neutral

Higher performing team

Respondents asserted that team members had great leeway in deciding independently upon minor decisions that were related to their area of expertise (*stated by A MD3*). However, for major issues that affected other task areas, the team manager had to be consulted (*stated by MD1 A MD3*). Typically, the team manager would listen to the arguments and then agree to the proposed conclusions. Quite regularly, however, he would insist on a different solution or confer with senior management before taking the final decision (*stated by MD1 A MD3*). This centralized decision-making structure was maintained throughout the entire project execution. However, due to a general lack of cooperation over development, the team manager was not contacted for several important decisions (*stated by MD1*). That is, the external team members proactively made decisions on their own without requesting the authorization of the team manager. Overall, the data indicate patterns of centralization to the extent that single team members conferred with the team manager on major issues, while the final decision rested solely with the team manager. Similar to Case 1, the data do not support 'centralization' to the extent that one authority makes the final decision without conferring with other team members. On the contrary, the data indicate that the entire team debated extensively about important and complex decisions before devising several potential solutions. However, the final decision what solution to implement was made in a centralized manner by the team manager. In addition, the data illustrate two interesting patterns: First, over development the data suggest high complexity and strong centralization but merely moderate teamwork effectiveness. Respondents asserted that teamwork was perceived as less effective partly because the external team members made unauthorized decisions without consulting the team manager or other team members. This infringement led to inadequate information distribution as well as problems in task execution. Similar to Case 5, the present case suggests that strong centralization is more effective when the team comprises members of the same organizations, but less effective when members of several organizations are involved. The acceptance or rejection of centralization might be based on factors such as differing cultures, indirect rivalry, or concerns over authority. Also, it is suggested that strong centralization was rejected for the same reason as strong formalization: because it was imposed on the external team member rather than mutually agreed (Table 105). In cross-case comparison, the data display a moderate level of centralization.

Task complexity fluctuated throughout the project. Contrary to the propositions, centralization remained unaltered throughout the entire development process, despite fluctuations in task complexity. Proposition 3 and Proposition 4 are therefore weakened.

Table 105: Case 8; Centralization, complexity and teamwork effectiveness in higher performing team

Initiation Phase	**Development Phase**	**Implementation Phase**
Centralization: *No fluctuations* Minor decisions are directly handled through each member without contacting the team manager; for major decisions the team manager must be consulted and final decision rests with the team manager	*Centralization:* *No fluctuations* As in previous phase	*Centralization:* *No fluctuations* As in previous phase
Moderate task complexity	High task complexity	High task complexity
High teamwork effectiveness	Moderate teamwork effectiveness	High teamwork effectiveness

Lower performing team

Throughout initiation, decision-making was purely consensus-driven, with all team members contemplating about possible solutions before reaching a collective conclusion (*stated by MD1 A MD2*). According to the team manager, a purely decentralized approach was established for three reasons. First, all participants were highly experienced experts. Second, the team manager was well acquainted with all team members and trusted their sound judgement. Third, the team harmonized well and was able to reach rapid, consensus-driven conclusions. In cross-case comparison, the data display a low level of centralization (Table 106).

Contrary to the majority of cases the present data pattern suggests that high complexity necessitates decentralized decision-making to facilitate teamwork. However, the lack of fluctuations in both centralization and complexity allows no inference regarding Proposition 3 or 4.

Table 106: Case 8; Centralization, complexity and teamwork effectiveness in lower performing team

Initiation Phase	Development Phase	Implementation Phase
Centralization Decision-making purely decentralized and consensus-driven	NA	NA
High task complexity	NA	NA
High teamwork effectiveness	NA	NA

2.8.6 Propositions regarding standardization of communication incidents

Higher Task Complexity	**Higher performing team**	**Lower performing team**
P5: Higher standardization of communication incidents is positively associated with teamwork effectiveness.	Proposition is weakened	Neutral
Lower Task Complexity	**Higher performing team**	**Lower performing team**
P6: Lower standardization of communication incidents is positively associated with teamwork effectiveness.	Proposition is weakened	Neutral

Higher performing team

The team's communication incidents were organized through regular coordination meetings with very structured and full agendas. These meetings followed a predefined communication schedule that listed the date and time, the communication mode deployed, the attendees, as well as the task agenda (*extract of communication schedule as evidence*). Throughout project execution team meetings were always held on Monday morning at 10 o'clock. However, the communication modes deployed for these meeting varied from phase to phase. Over initiation the team conducted weekly face-to-face meetings at the London premises of Deutsche Bank. The client, represented by four senior executives, attended some of these meetings to be updated on progress. Over development the team size had increased from 17 members to 32 members including experts from DB Capital Mezzanine Partners Paris, DB Capital Private Equity London, and 3i Birmingham. To account for the international dispersion of team members, the team manager substituted the weekly face-to-face

meetings with weekly video-conferenced meetings still held on Monday morning (*stated by MD1*). However, initial cooperation between all divisions proved problematic with some team members not attending meetings or not returning phone calls and e-mails in a timely manner (*stated by MD1 A MD3*). The situation escalated when two team members from Paris and Birmingham failed to attend a video-conferenced meeting with the client (*stated by MD1 A*). Over implementation, the team maintained weekly videoconferences that were still conducted on Monday morning and with all core team members participating on a mandatory basis (*stated by MD1 A*). Non-core members joined these meetings when requested (*stated by MD1 MD3*). Overall, the data indicate standardized communication incidents through predefined communication schedules (Table 107). In cross-case comparison, the data display a high level of standardization.

Task complexity fluctuated throughout the project. Contrary to the propositions, standardization remained unaltered throughout the entire development process, despite fluctuations in task complexity. Proposition 5 and Proposition 6 are therefore weakened.

Table 107: Case 8; Standardization, complexity and teamwork effectiveness in higher performing team

Initiation Phase	**Development Phase**	**Implementation Phase**
Standardization: No fluctuations Communication incidents are structured through predefined communication schedules that prescribe date and time, the communication mode deployed, the attendees, as well as the task agenda	*Standardization: No fluctuations* As in previous phase	*Standardization: No fluctuations* As in previous phase
Moderate task complexity	High task complexity	High task complexity
High teamwork effectiveness	Moderate teamwork effectiveness	High teamwork effectiveness

Lower performing team

The team cooperated for only 8 days before the project was suspended. Facing a highly competitive situation, the team manager was aware of the need to deliver fast results. To structure interaction, the team manager established three teleconferences per day with all team members participating. These meetings were called 'snap-shots',

designed as very brief and very intense incidents that addressed the most important issues at hand. To keep the team focused, the team manager tasked an assistant with drafting a structured agenda prior to every meeting. These teleconferences followed a predictable temporal pattern with each conference scheduled every day at the same hour (*stated by MD1 A MD2*). To be able to participate in all telephone conferences the team members used their mobile phones calling from remote places like Hong Kong and Shanghai, from various locations such as airplanes and restaurants, and at very odd hours (*stated by MD2*). Over this short but effective period of intense collaboration all communication incidents were planned and sequenced through intensive scheduling (Table 108). In cross-case comparison, the data display a high level of standardization.

In the present case, the team adhered to a predefined communication schedule that standardized all communication incidents. As such, the case data strengthen the assertion that high complexity necessitates standardized communication incidents to facilitate teamwork. However, the lack of fluctuations in both standardization and complexity allows no inference regarding Proposition 5 or 6.

Table 108: Case 8; Standardization, complexity and teamwork effectiveness in lower performing team

Initiation Phase	Development Phase	Implementation Phase
Standardization Communication incidents planned and sequenced through intensive scheduling: no face-to-face meetings	NA	NA
High task complexity	NA	NA
High teamwork effectiveness	NA	NA

2.8.7 Propositions regarding teamwork effectiveness and team performance

	Higher performing team	Lower performing team
P7: Teamwork effectiveness is positively associated with the tangible dimension of team performance.	Proposition is weakened	Neutral
P8: Teamwork effectiveness is positively associated with the intangible dimension of team performance.	Proposition is strengthened	Proposition is strengthened

Higher performing team

Respondents perceived overall teamwork effectiveness as moderate. Interestingly, despite mere moderate teamwork effectiveness the project met all task-related performance criteria. This would suggest that high teamwork effectiveness was not essential for the team to meet the task-related dimensions of team performance, which weakens Proposition 7. However, moderate teamwork effectiveness did affect the psychosocial outcomes with respondents voicing doubt about individual and collective satisfaction. This again suggests that high teamwork effectiveness was essential for meeting the intangible, psychosocial dimensions of team performance, which strengthens Proposition 8 (Table 109).

Table 109: Case 8; Teamwork effectiveness and team performance in higher performing team

Project Performance	Respondent MD1	Respondent MD3	Respondent A
(a) Task Outcome: Project on time	Yes	Yes	Yes
(b) Task Outcome: Project on budget	Yes	Yes	Yes
(c) Psychosocial Outcome: Individual satisfaction with project	No	Yes	Not sure
(d) Psychosocial Outcome: Collective satisfaction with project	Not sure	Not sure	Not sure
Perceived Overall Teamwork Effectiveness	Moderate	Moderate	Moderate

Lower performing team

Similar to Case 6 and Case 7, respondents perceived teamwork as highly effective and voiced great individual satisfaction despite the projects' ultimate termination. Proposition 8 is therefore strengthened. Eventually, the project was terminated for reasons beyond the team's control (Table 110).

Table 110: Case 8; Teamwork effectiveness and team performance in lower performing team

Project Performance	**Respondent MD1**	**Respondent MD 2**	**Respondent A**
(a) Task Outcome: Project on time	NA	NA	NA
(b) Task Outcome: Project on budget	NA	NA	NA
(c) Psychosocial Outcome: Individual satisfaction with project	Yes	Yes	Yes
(d) Psychosocial Outcome: Collective satisfaction with project	NA	NA	NA
Perceived Overall Teamwork Effectiveness	High	High	High

2.8.8 Additional factors of relevance

Table 111 and Table 112 display other relevant factors that were highlighted by respondents.

Please note: Figure 9 provides a case overview of the above analysis.

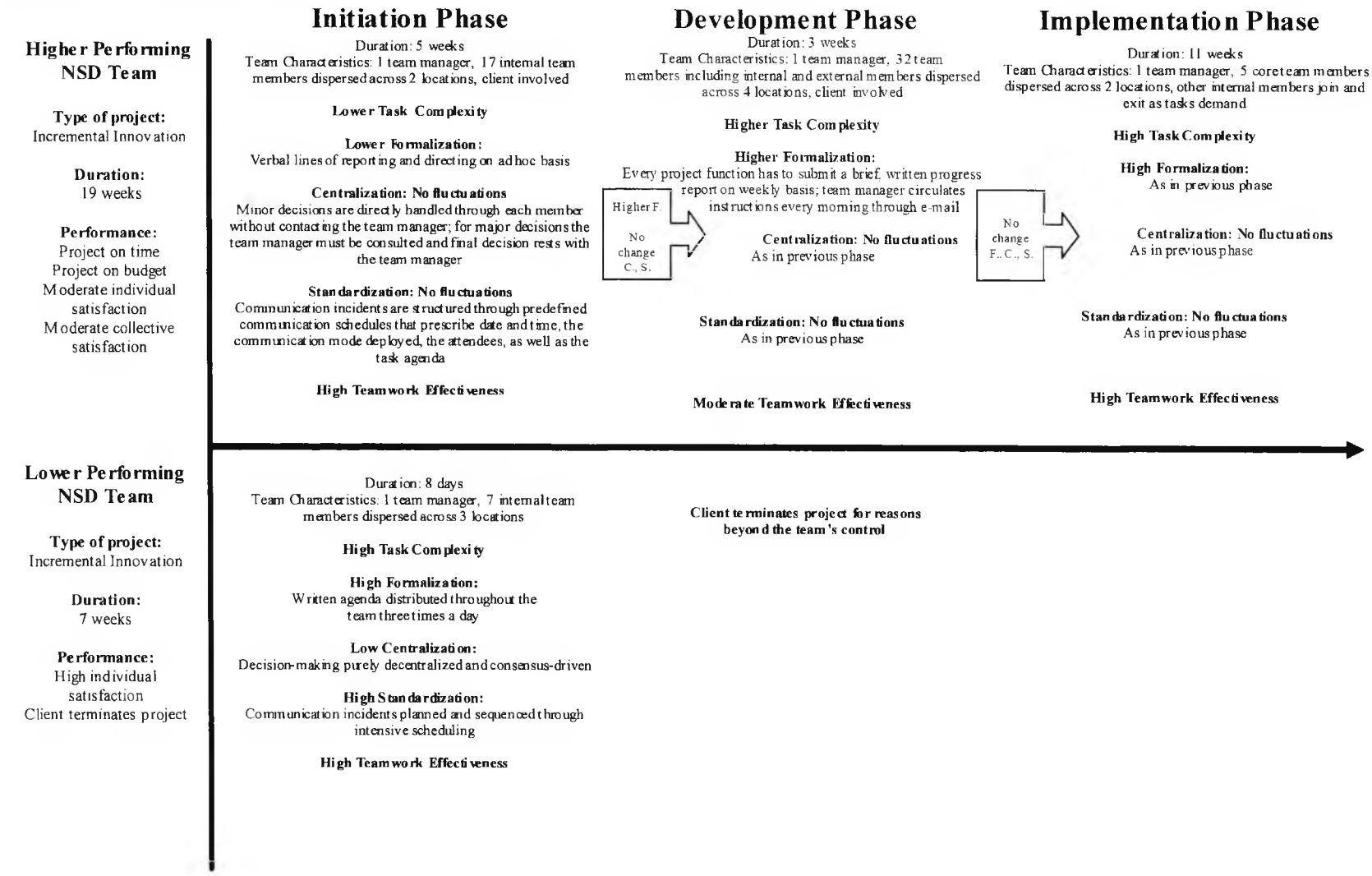
Table 111: Case 8. Additional factors of relevance in high performing team

Internal Factors	
Structure	
Project Level	Large multifunctional team; team size varies significantly throughout project, many external members from various functions involved (*increases work process complexity*)
Business Level	Business structure is changing towards a leaner, more flexible structure
Skill	
Project Level	Team involves experienced experts all familiar with virtual teamwork, team manager experienced with virtual teamwork (*positive impact on teamwork effectiveness*)
Business Level	Functional experts are available, all staff adept with virtual teamwork (*positive impact on teamwork effectiveness*)
Shared Values	
Project Level	Internal team members driven to complete project successfully (*positive impact on teamwork effectiveness*); lack of total 'buy-in' from external members mainly due to time constraints (*negative impact on teamwork effectiveness*)
Business Level	Internal climate described as competitive, uncertain, and stressful which negatively affects morale
Strategy	
Project Level	Objective is to deliver an innovative, high quality service on time and to the client's satisfaction
Business Level	Innovation not considered as particularly important to business strategy
Style	
Project Level	Team manager adopts a very 'hands on' and very organized style to enable effective virtual teamwork, when supervising a virtual team his style is more formal than usual, he insists that all internal team members are full-time deployed for the project (*positive impact on teamwork effectiveness*)
Business Level	Senior management participates in the initiation phase of the project, then hands the project over to the team manager; senior management is continuously updated on progress and contacted for major decisions
Staff	
Project Level	Team comprises internal and external experts: all internal members well acquainted, all internal members accessible and available ; external members often inaccessible and unavailable
Business Level	Rich pool of internal talent available, when external professionals are involved than for other reasons than their skill
External Factors	External auditors submit inaccurate financial data (*increases work process complexity*)

Table 112: Case 8. Additional factors of relevance in low performing team

Internal Factors	
Structure	
Project Level	Small and stable multi-functional team
Business Level	Business structure is changing towards a leaner, more flexible structure
Skill	
Project Level	Team involves highly skilled and experienced experts all familiar with virtual teamwork, team manager experienced with virtual teamwork (*positive impact on teamwork effectiveness*)
Business Level	Functional experts are available, all staff adept with virtual teamwork
Shared Values	
Project Level	Team members fully committed to project as long as execution is fast and furious: "do a quick and dirty job, cash in, and move on" (*positive impact on teamwork effectiveness*)
Business Level	Internal climate described as competitive, uncertain, and stressful which negatively affects morale
Strategy	
Project Level	Objective is to deliver faster than the competition (*increases work process complexity*)
Business Level	Innovation not considered as particularly important to business strategy
Style	
Project Level	Team manager pressures team members into participation, then ensures fast and efficient project execution, adopts a balanced management style between 'hands on' and 'hands off' (*positive impact on teamwork effectiveness*)
Business Level	Senior management participates in the initiation phase of the project, then remains uninvolved
Staff	
Project Level	Team comprises internal experts, all internal members well acquainted
Business Level	Rich pool of internal talent available, when external professionals are involved than for other reasons than their skill
External Factors	Client terminates project (*negative impact on team performance*)

Figure 9: Case 8 Analysis Overview



3. Cross-case conclusion

The previous section provided an overview of the single-case data analysis. Each of the eight cases was analyzed and emerging data patterns were subjected to the initial conceptual framework and propositions. Table 113 provides the cross-case meta-matrix, which assembles all emerging data patterns across cases in relation to the initial propositions.

Overall, the case data strengthen the proposition that high teamwork effectiveness has a positive impact on the tangible and intangible dimensions of team performance. However, the data weaken the propositions concerning the association of teamwork effectiveness and managerial structure. In cross-case comparison the data suggest the following data themes:

In relation to *formalization*, the data theme suggests higher formalization and effective teamwork in project phases of higher complexity. Conversely, the data theme indicates lower formalization and effective teamwork in project phases of lower complexity (Figure 10).

In relation to *centralization* the data theme suggests higher centralization and effective teamwork in project phases of higher complexity. Conversely, the data theme indicates lower centralization and effective teamwork in project phases of lower complexity (Figure 11).

Last, in relation to *standardization* the data theme suggests that standardization in effective teams remained unaltered throughout project execution, despite fluctuations in complexity (Figure 12). These emerging data themes are further discussed in the next chapter.

Table 113: Emerging data patterns subjected to propositions

	Higher Task Complexity: P1: Lower formalization of the work process is positively associated with teamwork effectiveness.	*Lower Task Complexity:* P2: Higher formalization of the work process is positively associated with teamwork effectiveness.	*Higher Task Complexity:* P3: Lower centralization of decision-making is positively associated with teamwork effectiveness.	*Lower Task Complexity:* P4: Higher centralization of decision-making is positively associated with teamwork effectiveness.	*Higher Task Complexity:* P5:Higher standardization of communication incidents is positively associated with teamwork effectiveness.	*Lower Task Complexity:* P6: Lower standardization of communication incidents is positively associated with teamwork effectiveness.	*Tangible Performance* P7: Teamwork effectiveness is positively associated with the tangible dimension of team performance.	*Intangible Performance* P8: Teamwork effectiveness is positively associated with the intangible dimension of team performance.
Case 1, Team 1 Goldman Sachs Higher Performing Team	(-) Data pattern differs: Higher formalization and effective teamwork in project phases of higher complexity.	(-) Data pattern differs: Lower formalization and effective teamwork in project phases of lower complexity.	(-) Data pattern differs: Higher centralization and effective teamwork in project phases of higher complexity.	(-) Data pattern differs: Lower centralization and effective teamwork in project phases of lower complexity.	(-) Data pattern differs: Complexity fluctuated throughout the project. Standardization remained unaltered throughout the entire project, despite fluctuations in complexity.	(-) Data pattern differs: Complexity fluctuated throughout the project. Standardization remained unaltered throughout the entire project, despite fluctuations in complexity.	(+) Data pattern corresponds: Teamwork was highly effective throughout project execution. Project was on time and on budget.	(+) Data pattern corresponds: Teamwork was highly effective throughout project execution. Respondents reported high individual and collective satisfaction.
Case 1, Team 2 Goldman Sachs Lower Performing Team	(-) Data pattern differs: Lower formalization and ineffective teamwork in project phases of higher complexity.	(0) No cohesive data pattern	(-) Data pattern differs: Lower centralization and ineffective teamwork in project phases of higher complexity.	(0) No cohesive data pattern	(-) Data pattern differs: Lower standardization and ineffective teamwork in a project phase of higher complexity.	(0) No cohesive data pattern	(+) Data pattern corresponds: Teamwork effectiveness fluctuated throughout project execution. Project was delayed and over budget.	(+) Data pattern corresponds: Teamwork effectiveness fluctuated throughout project execution. Respondents reported low individual and collective satisfaction.
Case 2, Team 3 Schroders Higher Performing Team	(-) Data pattern differs: Higher formalization and effective teamwork in project phases of higher complexity.	(-) Data pattern differs: Lower formalization and effective teamwork in project phases of lower complexity.	(-) Data pattern differs: Higher centralization and effective teamwork in project phases of higher complexity.	(-) Data pattern differs: Lower centralization and effective teamwork in project phases of lower complexity.	(+) Data pattern corresponds: Higher standardization and effective teamwork in project phases of higher complexity.	(+) Data pattern corresponds: Lower standardization and effective teamwork in project phases of lower complexity.	(+) Data pattern corresponds: Teamwork was highly effective throughout project execution. Project was on time and on budget.	(+) Data pattern corresponds: Teamwork was highly effective throughout project execution. Respondents reported high individual and collective satisfaction.
Case 2, Team 4 Schroders Lower Performing Team	(-) Data pattern differs: Higher formalization and effective teamwork in a project phase of higher complexity. Conversely, lower formalization and ineffective teamwork in a project phase of higher complexity.	(0) No cohesive data pattern	(-) Data pattern differs: Higher centralization and effective teamwork in a project phase of higher complexity.	(0) No cohesive data pattern	(+) Data pattern corresponds: Higher standardization and effective teamwork in a project phase of higher complexity. Conversely, lower standardization and ineffective teamwork in a project phase of higher complexity.	(0) No cohesive data pattern	(+) Data pattern corresponds: Teamwork effectiveness fluctuated throughout project execution. Project was delayed and over budget.	(+) Data pattern corresponds: Teamwork effectiveness fluctuated throughout project execution. Respondents reported low individual and collective satisfaction.

Continued overleaf

	Higher Task Complexity: P1: Lower formalization of the work process is positively associated with teamwork effectiveness.	*Lower Task Complexity:* P2: Higher formalization of the work process is positively associated with teamwork effectiveness.	*Higher Task Complexity:* P3: Lower centralization of decision-making is positively associated with teamwork effectiveness.	*Lower Task Complexity:* P4: Higher centralization of decision-making is positively associated with teamwork effectiveness.	*Higher Task Complexity:* P5:Higher standardization of communication incidents is positively associated with teamwork effectiveness.	*Lower Task Complexity:* P6: Lower standardization of communication incidents is positively associated with teamwork effectiveness.	*Tangible Performance* P7: Teamwork effectiveness is positively associated with the tangible dimension of team performance.	*Intangible Performance* P8: Teamwork effectiveness is positively associated with the intangible dimension of team performance.
Case 3, Team 5 NM Rothschild Higher Performing Team	(-) Data pattern differs: Higher formalization and effective teamwork in project phases of higher complexity.	(-) Data pattern differs: Lower formalization and effective teamwork in project phases of lower complexity.	(-) Data pattern differs: Higher centralization and effective teamwork in project phases of higher complexity.	(-) Data pattern differs: Lower centralization and effective teamwork in project phases of lower complexity.	(-) Data pattern differs: Complexity fluctuated throughout the project. Standardization remained unaltered throughout the entire project, despite fluctuations in complexity.	(-) Data pattern differs: Complexity fluctuated throughout the project. Standardization remained unaltered throughout the entire project, despite fluctuations in complexity.	(+) Data pattern corresponds: Teamwork was highly effective throughout project execution. Project was on time and on budget.	(+) Data pattern corresponds: Teamwork was highly effective throughout project execution. Respondents reported high individual and collective satisfaction.
Case 3, Team 6 NM Rothschild Lower Performing Team	(-) Data pattern differs: Low formalization and ineffective teamwork in a project phase of high complexity.	(0) No data pattern: Lack of fluctuations towards lesser complexity allows no inference regarding P2.	(-) Data pattern differs: Low centralization and ineffective teamwork in a project phase of high complexity.	(0) No data pattern: Lack of fluctuations towards lesser complexity allows no inference regarding P4.	(-) Data pattern differs: Low standardization and ineffective teamwork in a project phase of higher complexity.	(0) No data pattern: Lack of fluctuations towards lesser complexity allows no inference regarding P6.	(0) No data pattern: Tangible performance dimensions are not applicable	(+) Data pattern corresponds: Teamwork effectiveness fluctuated throughout project execution. Respondents reported low individual and collective satisfaction.
Case 4, Team 7 Barclays Capital Higher Performing Team	(-) Data pattern differs: Higher formalization and effective teamwork in project phases of higher complexity.	(-) Data pattern differs: Lower formalization and effective teamwork in project phases of lower complexity.	(-) Data pattern differs: Higher centralization and effective teamwork in project phases of higher complexity.	(-) Data pattern differs: Lower centralization and effective teamwork in project phases of lower complexity.	(-) Data pattern differs: Complexity fluctuated throughout the project. Standardization remained unaltered throughout the entire project, despite fluctuations in complexity.	(-) Data pattern differs: Complexity fluctuated throughout the project. Standardization remained unaltered throughout the entire project, despite fluctuations in complexity.	(-) Data pattern differs: Teamwork was highly effective throughout project execution. Project was on budget, but delayed.	(+) Data pattern corresponds: Teamwork was highly effective throughout project execution. Respondents reported high individual and collective satisfaction.
Case 4, Team 8 Barclays Capital Lower Performing Team	(0) No cohesive data pattern	(-) Data pattern differs: Lower formalization and effective teamwork in project phases of lower complexity.	(0) No cohesive data pattern	(-) Data pattern differs: Lower centralization and effective teamwork in project phases of lower complexity.	(0) No cohesive data pattern	(0) No cohesive data pattern	(+) Data pattern corresponds: Teamwork effectiveness fluctuated throughout project execution. Project was delayed.	(+) Data pattern corresponds: Teamwork effectiveness fluctuated throughout project execution. Respondents reported low individual and collective satisfaction.

Continued overleaf

	Higher Task Complexity: P1: Lower formalization of the work process is positively associated with teamwork effectiveness.	*Lower Task Complexity:* P2: Higher formalization of the work process is positively associated with teamwork effectiveness.	*Higher Task Complexity:* P3: Lower centralization of decision-making is positively associated with teamwork effectiveness.	*Lower Task Complexity:* P4: Higher centralization of decision-making is positively associated with teamwork effectiveness.	*Higher Task Complexity:* P5:Higher standardization of communication incidents is positively associated with teamwork effectiveness.	*Lower Task Complexity:* P6: Lower standardization of communication incidents is positively associated with teamwork effectiveness.	*Tangible Performance* P7: Teamwork effectiveness is positively associated with the tangible dimension of team performance.	*Intangible Performance* P8: Teamwork effectiveness is positively associated with the intangible dimension of team performance.
Case 5, Team 9 Abbey National Higher Performing Team	(-) Data pattern differs: Complexity fluctuated throughout the project. Formalization remained unaltered throughout the entire project, despite fluctuations in complexity.	(-) Data pattern differs: Complexity fluctuated throughout the project. Formalization remained unaltered throughout the entire project, despite fluctuations in complexity.	(-) Data pattern differs: Complexity fluctuated throughout the project. Centralization remained unaltered throughout the entire project, despite fluctuations in complexity.	(-) Data pattern differs: Complexity fluctuated throughout the project. Centralization remained unaltered throughout the entire project, despite fluctuations in complexity	(-) Data pattern differs: Complexity fluctuated throughout the project. Standardization remained unaltered throughout the entire project, despite fluctuations in complexity.	(-) Data pattern differs: Complexity fluctuated throughout the project. Standardization remained unaltered throughout the entire project, despite fluctuations in complexity.	(+) Data pattern corresponds: Teamwork was highly effective throughout project execution. Project was on time and on budget.	(+) Data pattern corresponds: Teamwork was highly effective throughout project execution. Respondents reported high individual and collective satisfaction.
Case 5, Team 10 Abbey National Lower Performing Team	(-) Data pattern differs: Lower formalization and ineffective teamwork in project phases of higher complexity. Further, higher formalization and effective teamwork in project phases of higher complexity.	(0) No data pattern: Lack of fluctuations towards lesser complexity allows no inference regarding P2.	(-) Data pattern differs: Lower centralization and ineffective teamwork in project phases of higher complexity. Further, higher centralization and effective teamwork in project phases of higher complexity.	(0) No data pattern: Lack of fluctuations towards lesser complexity allows no inference regarding P4.	(+) Data pattern corresponds: Higher standardization and effective teamwork in project phases of higher complexity. Further, lower standardization and ineffective teamwork in project phases of higher complexity.	(0) No data pattern: Lack of fluctuations towards lesser complexity allows no inference regarding P6.	(+) Data pattern corresponds: Teamwork effectiveness fluctuated throughout project execution. Project was delayed and over budget.	(+) Data pattern corresponds: Teamwork effectiveness fluctuated throughout project execution. Respondents reported low individual and collective satisfaction.
Case 6, Team 11 Lloyds TSB Higher Performing Team	(-) Data pattern differs: Complexity fluctuated throughout the project. Formalization remained unaltered throughout the entire project, despite fluctuations in complexity.	(-) Data pattern differs: Complexity fluctuated throughout the project. Formalization remained unaltered throughout the entire project, despite fluctuations in complexity.	(-) Data pattern differs: Higher centralization and effective teamwork in project phases of higher complexity.	(-) Data pattern differs: Lower centralization and effective teamwork in project phases of lower complexity.	(-) Data pattern differs: Complexity fluctuated throughout the project. Standardization remained unaltered throughout the entire project, despite fluctuations in complexity	(-) Data pattern differs: Complexity fluctuated throughout the project. Standardization remained unaltered throughout the entire project, despite fluctuations in complexity	(+) Data pattern corresponds: Teamwork was highly effective throughout project execution. Project was on time and on budget.	(+) Data pattern corresponds: Teamwork was highly effective throughout project execution. Respondents reported high individual and collective satisfaction.
Case 6, Team 12 Lloyds TSB Lower Performing Team	! (-) Data pattern differs: High formalization and effective teamwork in a project phase of high complexity.	(0) No data pattern: Lack of fluctuations towards lesser complexity allows no inference regarding P2.	(0) No cohesive data pattern	(0) No data pattern: Lack of fluctuations towards lesser complexity allows no inference regarding P4.	(+) Data pattern corresponds: High standardization and effective teamwork in a project phase of high complexity.	(0) No data pattern: Lack of fluctuations towards lesser complexity allows no inference regarding P6.	(-) Data pattern differs: Teamwork was highly effective throughout project execution. Project was terminated.	(-) Data pattern differs: Teamwork was highly effective throughout project execution. Project was terminated.

Continued overleaf

	Higher Task Complexity: P1: Lower formalization of the work process is positively associated with teamwork effectiveness.	*Lower Task Complexity:* P2: Higher formalization of the work process is positively associated with teamwork effectiveness.	*Higher Task Complexity:* P3: Lower centralization of decision-making is positively associated with teamwork effectiveness.	*Lower Task Complexity:* P4: Higher centralization of decision-making is positively associated with teamwork effectiveness.	*Higher Task Complexity:* P5:Higher standardization of communication incidents is positively associated with teamwork effectiveness.	*Lower Task Complexity:* P6: Lower standardization of communication incidents is positively associated with teamwork effectiveness.	*Tangible Performance* P7: Teamwork effectiveness is positively associated with the tangible dimension of team performance.	*Intangible Performance* P8: Teamwork effectiveness is positively associated with the intangible dimension of team performance.
Case 7, Team 13 Bank of Scotland Higher Performing Team	(-) Data pattern differs: Complexity fluctuated throughout the project. Formalization remained unaltered throughout the entire project, despite fluctuations in complexity.	(-) Data pattern differs: Complexity fluctuated throughout the project. Formalization remained unaltered throughout the entire project, despite fluctuations in complexity.	(-) Data pattern differs: Higher centralization and effective teamwork in project phases of higher complexity.	(-) Data pattern differs: Lower centralization and effective teamwork in project phases of lower complexity.	(-) Data pattern differs: Complexity fluctuated throughout the project. Standardization remained unaltered throughout the entire project, despite fluctuations in complexity.	(-) Data pattern differs: Complexity fluctuated throughout the project. Standardization remained unaltered throughout the entire project, despite fluctuations in complexity.	(+) Data pattern corresponds: Teamwork was highly effective throughout project execution. Project was on time. On budget was non applicable.	(+) Data pattern corresponds: Teamwork was highly effective throughout project execution. Respondents reported high individual and collective satisfaction.
Case 7, Team 14 Bank of Scotland Lower Performing Team	(-) Data pattern differs: High formalization and effective teamwork in a project phase of high complexity.	(-) Data pattern differs: High formalization and effective teamwork in a project phase of high complexity.	(-) Data pattern differs: Higher centralization and effective teamwork in project phases of higher complexity.	(0) No data pattern: Lack of fluctuations towards lesser complexity allows no inference regarding P4.	(+) Data pattern corresponds: High standardization and effective teamwork in a project phase of high complexity.	(0) No data pattern: Lack of fluctuations towards lesser complexity allows no inference regarding P6.	(-) Data pattern differs: Teamwork was effective throughout project execution. Project was terminated.	(-) Data pattern differs: Teamwork was effective throughout project execution. Project was terminated.
Case 8, Team 15 Deutsche Bank Higher Performing Team	(0) No cohesive data pattern	(-) Data pattern differs: Lower formalization and effective teamwork in project phases of lower complexity.	(-) Data pattern differs: Complexity fluctuated throughout the project. Centralization remained unaltered throughout the entire project, despite fluctuations in complexity.	(-) Data pattern differs: Complexity fluctuated throughout the project. Centralization remained unaltered throughout the entire project, despite fluctuations in complexity.	(-) Data pattern differs: Complexity fluctuated throughout the project. Standardization remained unaltered throughout the entire project, despite fluctuations in complexity.	(-) Data pattern differs: Complexity fluctuated throughout the project. Standardization remained unaltered throughout the entire project, despite fluctuations in complexity.	(-) Data pattern differs: Teamwork effectiveness fluctuated throughout project execution. Project on time and on budget.	(+) Data pattern corresponds: Teamwork effectiveness fluctuated throughout project execution. Respondents reported low individual and collective satisfaction.
Case 8, Team 16 Deutsche Bank Lower Performing Team	(-) Data pattern differs: High formalization and effective teamwork in a project phase of high complexity.	(0) No data pattern: Lack of fluctuations towards lesser complexity allows no inference regarding P2.	(+) Data pattern corresponds: Low centralization and effective teamwork in a project phase of high complexity.	(0) No data pattern: Lack of fluctuations towards lesser complexity allows no inference regarding P4.	(+) Data pattern corresponds: High standardization and effective teamwork in a project phase of high complexity.	(0) No data pattern: Lack of fluctuations towards lesser complexity allows no inference regarding P6.	(-) Data pattern differs: Teamwork was effective throughout project execution. Project was terminated.	(-) Data pattern differs: Teamwork was effective throughout project execution. Project was terminated.

Figure 10: Emerging data theme, formalization

Data Patterns: Formalization

(I) In project phases of higher complexity:

Predicted Data Pattern:

P1: Lower formalization of the work process is positively associated with teamwork effectiveness.

P1 observed in 0 project teams

Differing Data Patterns:

➡ *Pattern A: Higher formalization of the work process is positively associated with teamwork effectiveness.*

Pattern A observed in 9 project teams: 1H, 2H, 2L, 3H, 4H, 5L,6L, 7L, 8L

Pattern B: Lower formalization of the work process is negatively associated with teamwork effectiveness.

Pattern B observed in 4 project teams: 1L, 2L, 3L, 5L

Pattern C: No fluctuations in formalization throughout project execution, despite fluctuations in complexity.

Pattern C observed in 3 project teams: 5H, 6H, 7H

No cohesive pattern / No pattern due to lack of data

Observed in 2 project teams: 4L, 8H

(II) In project phases of lower complexity:

Predicted Data Pattern:

P2: Higher formalization of the work process is positively associated with teamwork effectiveness.

P2 observed in 0 project teams

Differing Data Patterns:

➡ *Pattern A: Lower formalization of the work process is positively associated with teamwork effectiveness.*

Pattern A observed in 6 project teams: 1H, 2H, 3H, 4H, 4L, 8H

Pattern B: No fluctuations in formalization throughout project execution, despite fluctuations in complexity.

Pattern B observed in 3 project teams: 5H, 6H, 7L

No cohesive pattern / No pattern due to lack of data

Observed in 7 project teams: 1L, 2L, 3L, 5L, 6L, 7L, 8L

Symbol Key (e.g.):

1H = Case 1, Higher Performing Team

2L = Case 2, Lower Performing Team

➡ = Frequent observed patterns

Source: Case Data

Figure 11: Emerging data theme, centralization

Data Patterns: Centralization

(I) In project phases of higher complexity:

Predicted Data Pattern:

P3: Lower centralization of decision-making is positively associated with teamwork effectiveness.

P3 observed in 1 project team: 8L

Differing Data Patterns:

➡ *Pattern A: Higher centralization of decision-making is positively associated with teamwork effectiveness.*

Pattern A observed in 9 project teams: 1H, 2H, 2L, 3H, 4H, 5L, 6H, 7H, 7L

Pattern B: Lower centralization of decision-making is negatively associated with teamwork effectiveness.

Pattern B observed in 3 project teams: 1L, 3L, 5L

Pattern C: No fluctuations in centralization throughout project execution, despite fluctuations in complexity.

Pattern C observed in 2 project teams: 5H, 8H

No cohesive pattern / No pattern due to lack of data

Observed in project 2 teams: 4L, 6L

(II) In project phases of lower complexity:

Predicted Data Pattern:

P4: Higher centralization of decision-making is positively associated with teamwork effectiveness.

P4 observed in 0 project teams

Differing Data Patterns:

➡ *Pattern A: Lower centralization of the decision-making is positively associated with teamwork effectiveness.*

Pattern A observed in 7 project teams: 1H, 2H, 3H, 4H, 4L, 6H, 7H

Pattern B: No fluctuations in centralization throughout project execution, despite fluctuations in complexity.

Pattern B observed in 2 project teams: 5H, 8H

No cohesive pattern / No pattern due to lack of data

Observed in project teams: 1L, 2L, 3L, 5L, 6L, 7L, 8L

Symbol Key (e.g.):

1H = Case 1, Higher Performing Team

2L = Case 2, Lower Performing Team

➡ Most frequent observed patterns

Source: Case Data

Figure 12: Emerging data theme, standardization

Data Patterns: Standardization

(I) In project phases of higher complexity:

Predicted Data Pattern:

P5: Higher standardization of communication incidents is positively associated with teamwork effectiveness.

P5 observed in 6 project team: 2H, 2L, 5L, 6H, 7L, 8L

Differing Data Patterns observed:

Pattern A: Lower standardization of communication incidents is negatively associated with teamwork effectiveness.

Pattern A observed in 4 project teams: 1L, 2L, 3L, 5L

➡ *Pattern B: No fluctuations in standardization throughout project execution, despite fluctuations in complexity.*

Pattern B observed in 7 project teams: 1H, 3H, 4H, 5H, 6H, 7H, 8H

No cohesive pattern / No pattern due to lack of data

Observed in 1 project team: 4L

(II) In project phases of lower complexity:

Predicted Data Pattern:

P6: Lower standardization of communication incidents of decision-making is positively associated with teamwork effectiveness.

P6 observed in 1 project team: 2H

Differing Data Patterns observed:

➡ *Pattern A: No fluctuations in standardization throughout project execution, despite fluctuations in complexity.*

Pattern A observed in 7 project teams: 1H, 3H, 4H, 5H, 6H, 7H, 8H

No cohesive pattern / No pattern due to lack of data

Observed in 8 project teams: 1L, 2L, 3L, 4L, 5L, 6L, 7L, 8L

Symbol Key (e.g.):

1H = Case 1, Higher Performing Team

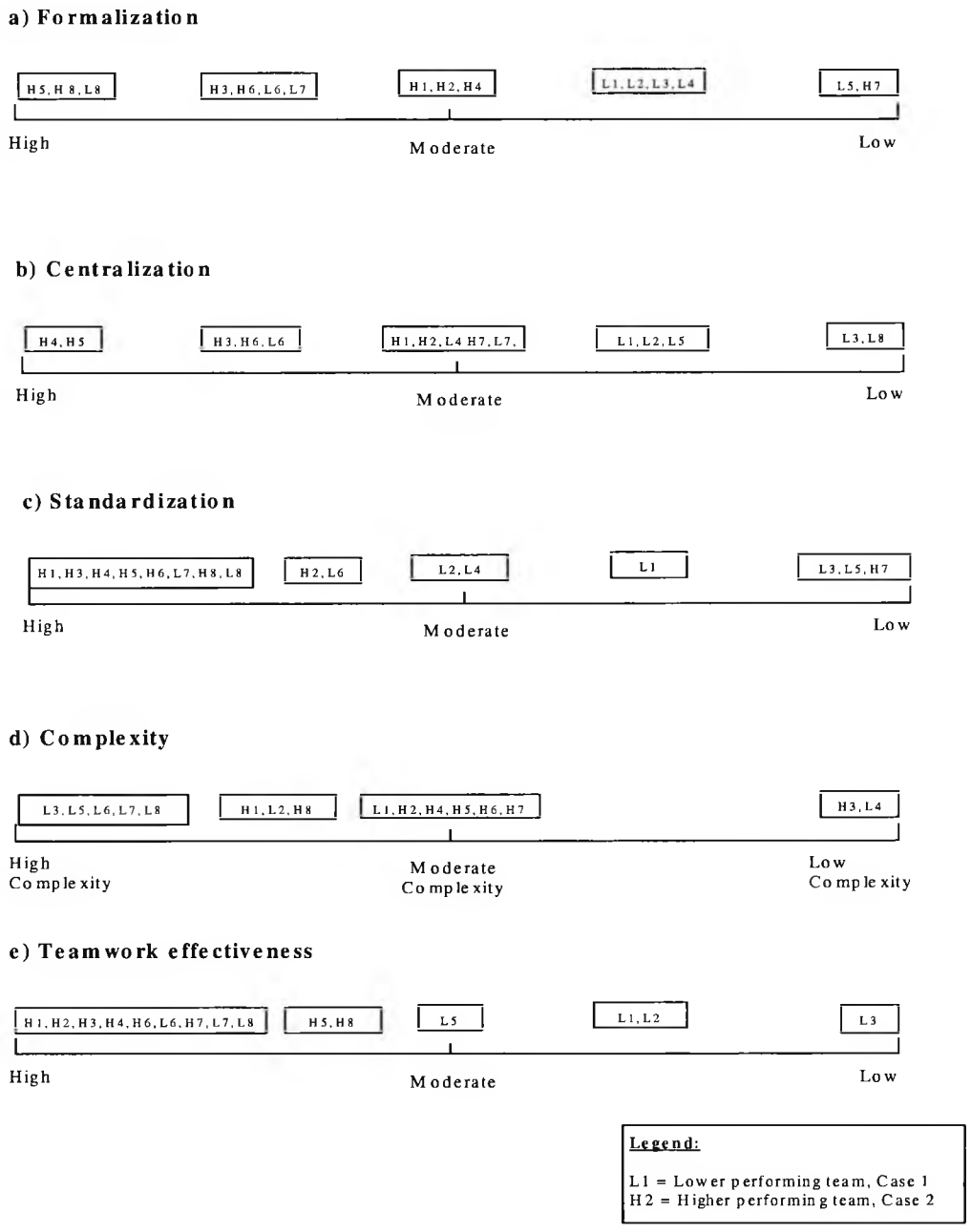
2L = Case 2, Lower Performing Team

➡ Most frequent observed patterns

Source: Case Data

Further, the case data suggest that higher performing teams display stronger patterns of formalization, centralization, and standardization, while lower performing teams display weaker patterns (Figure 13). Also, the case data suggest that lower performing teams perceived task complexity as high, whereas higher performing teams evaluated complexity as moderate. Perhaps not surprisingly, the cased data further suggest that higher performing teams attained high to moderate teamwork effectiveness while lower performing teams attained moderate to low effectiveness.

Figure 13: Cross-case pattern: variables compared

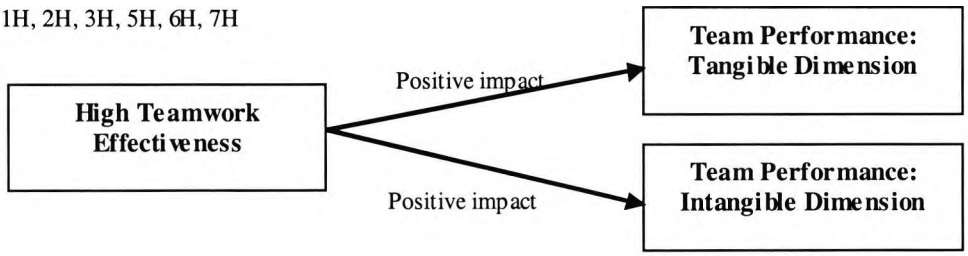


Further, the data suggest four emerging patterns concerning the association between teamwork effectiveness and team performance (Figure14).

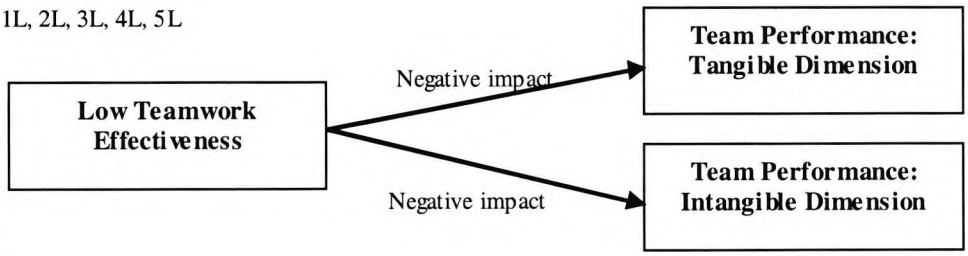
Figure 14: Association between teamwork effectiveness and team performance

Most frequently observed patterns:

(a) 1H, 2H, 3H, 5H, 6H, 7H

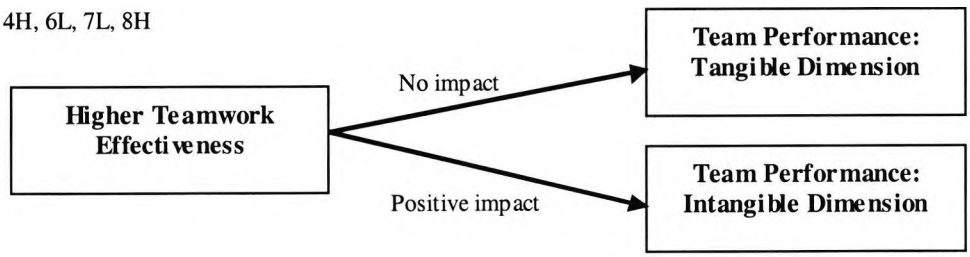


(b) 1L, 2L, 3L, 4L, 5L

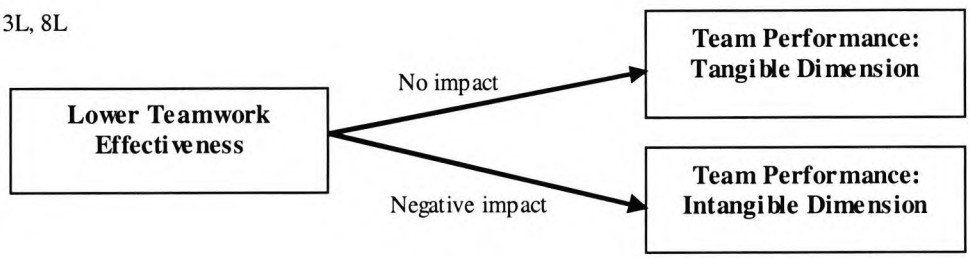


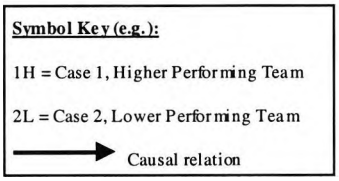
Differing patterns:

(c) 4H, 6L, 7L, 8H



(d) 3L, 8L



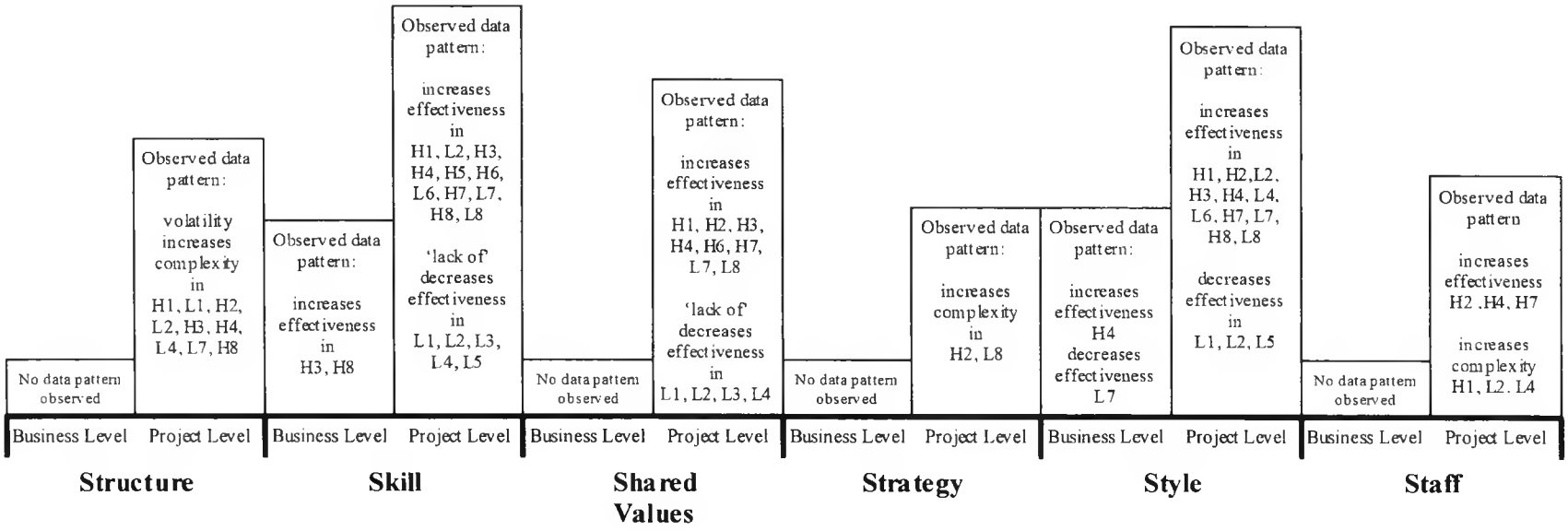


Source: Case Data

Last, the data suggest that some additional internal variables were more relevant in their influence on teamwork effectiveness and work process complexity than others. In particular, the influence of Structure, Skill, Shared Values, and Style (all at project level of analysis) on teamwork effectiveness and overall complexity was repeatedly observed across cases (Figure 15).

Please note Chapter 7 provides the discussion of the above cross-case findings.

Figure 15: Emerging data themes, most and least important additional internal factors under control of management



Symbol Key (e.g.):

1H = Case 1. Higher Performing Team

2L = Case 2. Lower Performing Team

Source: Case data

APPENDIX VI.

The Case Studies

1. Introduction: NSD in Corporate Banking

All of the respondents described market conditions as being particularly difficult from the year 2000 onwards. A weak global economy combined with deteriorating equity markets and significant capital losses due to bad-debt related ventures were commonly cited as the underlying factors for a demanding market environment and poor financial performance. This situation results in a state of fundamental and ongoing organizational change characterized by significant reductions in headcount and industry-wide restructuring. While financial services have been undergoing rapid industry change for almost a decade, the pace of transformation has been accelerating over the last three years. Well-known trends are: blurring of industry boundaries, deregulation, mergers and acquisitions, globalization, pressures from new and existing competitors, quickly advancing information technologies, and increased customer sophistication. What is new about the current situation is that all these challenges have to be tackled despite rapidly declining revenue streams. Indeed, all sampled companies were undergoing or had emerged from extensive organizational restructuring, which created a working climate described as highly competitive, risk averse, uncertain and stressful.

This has profound implications for innovation and NPD/NSD. All respondents reported that major development projects had been deferred or terminated. Even those banks that consider NSD an organizational strength and key to business strategy have significantly reduced development activities in order to limit risk and save resources. As a consequence, the current development of new services and products is restricted to either incremental innovations initiated and funded by clients or few small-scale projects pursued by individual champions. While few of the sampled banks doubt the need for continuous and even radical innovation, all have reduced their innovation activities over the past three years. Respondents indicate that, faced with highly competitive and dynamic environment, senior management currently forsake NPD/NSD as being too risky and costly a business strategy and instead concentrate on stabilizing and reducing their existing product portfolio. At the same time, managers involved in NPD/NSD projects come under tremendous pressure to reach successful conclusions. All of these factors add to a turbulent and complex contextual setting, which makes succeeding in NPD/NSD evermore challenging and desirable.

2. Cases

2.1 Case 1: Goldman Sachs

2.1.1 Background to the organization

The Goldman Sachs Group, Inc. is a global investment banking and securities firm that provides services worldwide to a substantial and diversified client base. In 2003 the Company operates offices in over 20 countries. Goldman Sachs is the successor to a commercial paper business founded in 1869. On May 7, 1999, the Company converted from a partnership to a corporation. The company's activities are divided into Global Capital Markets, and Asset Management and Securities Services. Goldman Sachs opened its first international office in London in 1970. Since then, the location has grown to accommodate over 4,000 professionals in a wide range of divisions. The UK firm is now the hub of Goldman Sachs' European activities and a major player in UK investment banking and securities.

The company is considered as a global leader and provides a full range of services to corporations, financial institutions, governments and wealthy individuals. Investment banking, trading, asset management and securities represent London's core activities.

In the UK, Goldman Sachs has been involved in many large mergers and acquisitions, and is an international advisor for many of the country's largest multinationals. For example, more recent transactions include Vodafone Group, on its acquisition of Mannesmann AG, Glaxo Wellcome plc, on its merger with SmithKline Beecham, and E.on, on its merger with PowerGen plc. From the year 2000 onwards Goldman Sachs has been hit by falling capital markets and is currently in the process of reducing headcount.

Business processes within Goldman Sachs are highly structured and are managed hierarchically. Multi-disciplinary teams are formed to develop new products and services, which are mostly conceived for large corporate clients as well as pension and investment funds. New product development is considered a compulsory process that evolves naturally out of business activities and there are no specific mechanisms, functions or experts in place for fostering innovation. The business culture is described as highly competitive and challenging with relatively low tolerance for

failure. Overall, the organization has a reputation for being aggressive and entrepreneurial.

2.1.2 Background to the division

The General Industrial Group at Goldman Sachs is a unit concerned with advising large multinational clients on a variety of financial areas. Usually the unit maintains long-term relationships with their clients and engages in a continuous auditing process. That is, the client is audited to identify opportunities for new financial services that could help the client's business to become more efficient and profitable. Once the General Industrial Group and the client agree on the need for a new financial service, experts from Goldman Sachs are brought in to design and implement the service. Goldman Sachs provides the auditing free of charge but receives a fee for every new service implemented. It is stressed that cultivating a healthy relationship with the client is more important than any short-term profit generated by single projects. The unit is headed by two Managing Directors who report directly to the Head of Investment Banking London. The unit comprises four hierarchical levels and 25 members who are usually engaged in several projects at a time. Also, for auditing purposes the unit operates as a traditional work group, co-located on one floor at Goldman Sachs Peterborough Court, London. Only when a new service development actually gets commissioned the unit transforms itself into a virtual team, incorporating experts from Goldman Sachs offices in Frankfurt, New York, and Hong Kong. In addition, most clients are global organizations with headquarters located outside the UK and a heavy travel schedule for unit members is obligatory.

2.1.3 The higher performing team

This involved the development of a third-party equity scheme for the lending arm of Volvo Trucks, Sweden. Typically, Volvo Trucks used to cover funding plans for vehicle purchases in-house. That is, a Volvo customer would purchase a fleet of trucks over a finance theme and repay the cost of the fleet plus interest by fixed monthly instalments. Volvo would provide the financial cover, bearing the risk of default. Under the new scheme, however, Volvo would securitize a loan portfolio and transfer it to third-party investors who would carry the risk of default in return for premiums. The project involved the use of Goldman Sachs associates located in Frankfurt, London, and Stockholm. The team manager in charge of the project was

the second Managing Director of the unit, who had extensive experience with development projects and who had negotiated the project with Volvo.

The project commenced in March 2000 and was completed on time, on budget and to the customer's satisfaction in August 2000. Accordingly, team manager and team member voiced great content with teamwork and team performance. Senior management was informed about the project, but the general understanding was that it was too small to be of particular interest.

Initiation Phase

During the initiation phase of the project, the team was comprised of eight team members. Of these members, five were from the General Industrial Group, London, and two from Goldman Sachs Frankfurt; all team members were experts in the area but one Frankfurt member had just recently joined the firm. The team manager was the only one personally acquainted with all members.

At the beginning of the project, the work process was characterized by high complexity and included tasks such as the formulation of objectives, the selection of further experts, and the outlining of a project plan. Each aspect of the development process required input from each single team member resulting in high team interdependence. Building on his previous experience with virtual teams, the team manger immediately established strong reporting lines and requested every member to submit a brief progress report on a daily basis. That is, each team member was encouraged to make heavy use of Goldman Sachs' elaborated telephone system and to leave a verbal progress report on the teams' voicemail platform. This message was then accessible through a secret access code by all other team members. Conversely, the team manager left a message "first thing in the morning before breakfast" on the voicemail platform, outlining the events of the previous day and detailing the most immediate tasks at hand. The team manager had great disdain for an over reliance on e-mail, because it requires steady access to a computer and the Internet. Since the team maintained a busy travel schedule, a reliable Internet connection was not always feasible and the voicemail platform, accessible through the mobile phone from anywhere in the world, proved a valuable alternative. In addition, individual team members were requested to communicate with the team manager, but not with the

whole team, via telephone at least twice per week. These conference calls were held to resolve more complex problems and to coordinate decision-making. The team manager insisted to be contacted by team members before important project-related decisions were made. He would then circulate the decision to the whole team in his next voicemail memo. The initiation phase proceeded for seven weeks. During this period the team's personal interaction was structured around three face-to-face coordination meetings with very detailed and full agendas, attended by all team members. The meetings were held at Goldman Sachs London and accomplished several purposes. They allowed synchronous dialogue among all members to resolve particularly complex issues. Miscommunication from the past was clarified and major decisions were made. It was particularly important to the team manager that risky decisions were thoroughly discussed before a consensus-driven decision was eventually made. Acknowledging that he was "not an expert on everything", the team manager used face-to-face meetings for accumulating as much intelligence as possible before making an informed, centralized decision. The team appreciated these meetings as an opportunity to clarify ambiguous issues and to develop relationships with other team members. Throughout the initiation phase, teamwork was perceived as effective with high quality of inter-team communication, high quality of information distribution, and high quality of task execution.

Development Phase

The development phase commenced according to schedule and continued for three months. It was decided that Goldman Sachs Sweden should coordinate the actual development process on location at Volvo Trucks Headquarters in Göteborg. The Swedish team comprised three Associates and one Managing Director. The latter was a personal friend of the London team manager and a highly regarded senior manager at the Swedish office. The reporting line via voicemail was maintained and progress reports had still to be posted daily. Also, the Managing Director in Sweden was in charge of all the communication between his office and the rest of the team. The team manager continued to forward verbal voicemail memos on a daily basis. In addition, he held daily telephone conferences with the Managing Director in Sweden and the team members in Frankfurt. He continuously insisted on being consulted for major decision-making tasks. The work process formed very complex for the team, because the two experts in Frankfurt were unable to personally oversee the development

process on location in Sweden due to time constraints. As a consequence, they had to instruct the Swedish office on a vast number of regulatory and contractual issues on a daily basis. To reduce complexity, the whole team held personal face-to-face meetings monthly at Goldman Sachs premises in Stockholm. Yet again, these meetings involved extensive discussions in which risky decisions were addressed and implementation details worked out. Throughout development, teamwork was perceived as effective with high quality of inter-team communication, high quality of information distribution, and high quality of task execution.

Implementation Phase

The implementation phase was structured around a training seminar to be held for two days on location at Volvo Trucks, Göteborg. The seminar was intended to brief Volvo's senior management on the project outcome and to introduce employees of the Volvo Finance unit to the new funding theme. Prepared by the Stockholm office, the seminar was held in Swedish but featured short presentations in English by the team manager and one of the Frankfurt based team members. With a smaller team size, high task predictability and high problem analyzability, task complexity was perceived as moderately high. To devise the seminar, the team manager maintained regular phone contact with the team members in Stockholm and Frankfurt. These phone calls had the character of team meetings and were scheduled according to protocol. The protocol detailed timing and content of phone-calls and was devised mutually by all team members. Decision-making rested with the small task force located in Sweden, who adopted a decentralized, consensus-driven approach. The team manager was informed only after decisions had been made and implemented. Throughout the initiation phase, teamwork was perceived as effective with high quality of inter-team communication, high quality of information distribution, and high quality of task execution. The project was considered worthwhile and successful by the team and the team manager. However, it remains to be seen whether it generates the desired efficiencies for Volvo Tucks in the long run.

2.1.4 The lower performing team

This involved the development of a sophisticated inventory system for Volvo Trucks. The company maintained a strong partnership with Technolit a supplier of hydraulic components based in Prague, Czech Republic. Traditionally, Volvo Trucks would order large quantities of components from Technolit based on a just-in-time inventory system. Once delivered, Volvo Trucks would make payments every five months for all components received over that period. However, the auditing team at Goldman Sachs suggested that instead of paying one large amount every five months, Volvo Trucks should utilize currency fluctuations to reap exchange related benefits. That is, Goldman Sachs would supervise the development of a sophisticated inventory system that would not only monitor current demand but also consider currency alternation to make or defer payments on an instant basis. The system was proposed to save Volvo Trucks capital as well as making the company less dependent on volatile market forces. The project was supervised by the General Industrial Group at Goldman Sachs London and incorporated associates from Goldman Sachs Sweden and Goldman Sachs Russia. Yet again, the team manager in charge of the project was the second Managing Director of the General Industrial Group.

The project commenced in January 2000 and was finalized in August 2000 on time, but with a grossly inflated budget. The client was satisfied with the project but team manager and team member complained about a significant lack of effective teamwork. Initially, senior management was uninvolved but internal rumours combined with a budgetary increase eventually drew their attention.

Initiation Phase

During initiation phase the team was comprised of six team members. Of these, three were from the General Industrial Group London, two from Goldman Sachs Sweden, and two from Goldman Sachs Russia. The two Swedish members were personally acquainted with two of the London members, but none of the group members had ever collaborated with the Russian office before.

The team's work process during initiation required a high interdependence and was considered as very complex. It was mandatory for every team member to contact the team manager per telephone once a day to receive verbal instructions. In addition,

each member had to submit a verbal progress report to the team's voicemail platform. The main task for the team comprised the drafting of a project report, which would detail all features required of the new inventory system. This report was then to be presented to the management of both companies, Volvo Trucks and Technolit, and eventually forwarded to an external software company for execution. To draft the report, the whole team engaged in teleconferenced brainstorming sessions to exchange ideas and to set boundaries.

It soon became clear that the team required a software expert who had experience with inventory and supply chain management. Once the team manager had contracted an external software consultant, the whole team met face-to-face in London. Reportedly this meeting was a "tour de force" continuing for eight hours and ending with a fairly precise project outline. Prior to the meeting the team manager had distributed minutes detailing all areas of importance. During the meeting the team manager first declined to push the team towards decision-making. However, as the meeting continued for hours and team members worried about catching their flights in the evening, the team manager took a more proactive role insisting on an agreeable conclusion.

Development Phase

The development phase commenced with part of the team giving a personal presentation to the management of Volvo Trucks and Technolit at Volvo's headquarters in Göteborg, Sweden. The management of both companies were delighted by the proposal and Volvo recommended a local software firm to be charged with the system design. The software firm had previous experience with Volvo's inventory system and was said to be a reliable partner. After initial hesitations to engage a small and unknown firm, the team manager eventually conceded to Volvo's suggestions. It was agreed that two team members of the General Industrial Group would closely cooperate with the software company to supervise the development process. The two parties further agreed to maintain communication through e-mail exchanges and telephone calls. However, after few weeks of strenuous cooperation the team members informed the team manager of several unreturned phone calls and un-replied e-mails. Apparently, key personnel had left the Swedish software firm and the replacement was unwilling or unable to progress the project

with the skill and drive required. The team manager was at this point admittedly "absorbed in another project", "ignored the warning signs" and simply suggested to "kick ass and keep going". At mid-stream and five months into the project a face-to-face meeting between the General Industrial Group, Volvo and the Software company was arranged in Stockholm. The gathering was intended to evaluate progress and to present a software prototype. It turned out to be catastrophic. Not only did the system crash several times during presentation, but the developers had also omitted several key features that were imperative to the systems purpose. The "outraged" team manager complained heavily to the software firm only to be told that some of these features were not detailed in the initial contract and, therefore, would be charged additionally. On reflection, the team manager had either the choice of changing the developer at this late phase, thereby delaying implementation for several months, or accepting the additional fees and inflating the budget. As Volvo signalled no intention to share additional expenses the General Industrial Group would have to bear the whole costs. After consulting the first Managing Director of the General Industrial Group, it was decided that Volvo Trucks was too important a client to affront and that Goldman Sachs was determined to deliver the project on time and at any cost.

Implementation Phase

From this moment on to the implementation of the system, the team manager maintained strong reporting lines between his team members and the software company on a daily basis. In addition, he reverted to distributing daily memos on project progress, objectives, and tasks. For the last three months of the project, the team met every fortnight with the software company in Stockholm or Göteborg to monitor progress and to clarify issues. Eventually, the system was implemented to the customers' satisfaction, but with a delay of three weeks and one-third above the initial budget.

2.2 Case2: Schroders

2.2.1 Background to the organization

Schroders Investment Management Ltd. is one of the world leaders in asset management, operating a global network of offices. Schroders clients include charities, corporations, high net worth individuals, insurance companies, local and public authorities, pension funds, and unit trust holders. The Schroder Group has a history of almost 200 years. It has grown from a merchant banking partnership established when Johann Heinrich Schröder moved from Hamburg to the United Kingdom in 1804. The Schroder family still holds a controlling interest in Schroders plc. Following the sale of the Investment Banking division during 2000, asset management and related businesses now comprise the whole of Schroders' business.

In the UK, Schroders is a key player in the UK Institutional market. The Group manages funds across all asset categories including equities, bonds, cash, property and alternative investments. UK Pension Funds represent Schroders single largest client base, with over 38% of total funds under management. As at the end of December 2001, the Group managed £41.9 billion on behalf of 687 UK Pension Fund clients.

However, over the last four years Schroders has been hit by heavy client losses in pension funds resulting from a period of poor performance in the late 1990s and an industry shift away from balanced funds towards bonds and shares. In 2002, funds under management fell by 15 per cent from £102.7bn at the half-year end to £87.2bn. According to Schroders this reflected a fall of about 20 per cent in its main equity markets. Like the rest of the fund management industry, Schroders is currently coping with reduced margins as fees on assets under management are declining with the market. Since 2001 the company is continuously cutting costs as part of a large restructuring scheme. Over this period the headcount has been reduced from 3,100 in 2001 to 2,400 in late 2002.

The business structure is that of hierarchically managed functional departments who cooperate in cross-functional project teams to develop and launch products. The core activities in new product development rest with creating new funds and selling these to institutional investors. The organization considers continuous innovation as one of their core competencies and is particularly active in developing alternative

investments including property, structured products, private equity, and hedge funds. However, there are no specific mechanism, functions, or experts in place to guide and foster innovation. The business culture is changing due to significant reductions in headcount resulting in an internal climate of high uncertainty and low tolerance for failure. In addition, the newly appointed senior management strives to create a more competitive climate, fostering the entrepreneurial spirit among employees.

2.2.2 Background to the division

Schroder Property Investment Management Limited is the UK property arm of Schroders plc and a wholly owned subsidiary of Schroder Investment Management Limited. The unit manages pooled UK property vehicles, including the Schroder Exempt Property Unit Trust (SEPUT), the largest UK PUT. The unit also provides property advice to a range of property funds and facilitates the exchange of direct property for holdings in PUTs. A fellow subsidiary, Schroder Property Managers (Jersey) Limited manages a number of Jersey domiciled unit trusts, which invest in various sectors of the UK market. These vehicles enable gross and net investors to co-invest in a tax efficient manner.

Originally, the unit was created in 1972 as a small team of chartered surveyors in charge of managing real estate properties directly owned by Schroders. However, in the early eighties the team originated the idea of bundling all Schroder-owned properties into one small real-estate fund and offering this to institutional investors such as pension funds. While being moderately successful for several years, expanding Schroders real-estate portfolio to 100 Million Pounds in asset value, the UK property market crash of the early 90's seriously affected the unit. In addition, the booming equity markets from 1992 to 1999 made it very difficult to attract investors to the area of real estates, which was then regarded as far too conservative, rigid, and marginal profitable. Only with the decline of equity markets from 2000 onwards, investors became aware of the relative safety and stability that real estates provide. Realizing this market trend, the unit quickly developed a series of new and highly successful funds, increasing the asset value under management from 1 Billion Pounds in 2000 to 4 Billion Pounds in 2003. In late 2002 the unit was honoured with the Schroder Award for excellence in innovation.

The unit comprises 45 employees under the supervision of one Managing Director. Of these 18 are located in London, 10 in Aberdeen, 5 in Glasgow, and 12 in Jersey. This geographic dispersion of unit members makes virtual teamwork mandatory. One part of the unit is solely responsible for managing and maintaining properties; another part is in charge of surveying and acquiring real estates, yet another part is tasked with managing, developing and marketing Schroders' range of property funds. The Managing Director oversees all three areas, but is mainly involved in the development and marketing process.

2.2.3 The higher performing team

This involved the development of a new property fund featuring a portfolio of Business Parks spread across the UK. Schroders had acquired stakes in twenty-two Business Parks and acted as major investor in several further commercial development projects. Building on the success of their 'Shopping Mall' fund, the unit intended to have the new fund developed and marketed by the Jersey office in order to reap tax-related benefits and to appeal to institutional investors. The project was under supervision of the Managing Director of the unit and involved the intense collaboration of all four offices, London, Glasgow, Aberdeen, and Jersey. The Managing Director, being associated with the unit for 11 years, had significant experience with fund developments and was accustomed to virtual teamwork.

After an initiation phase of three years the actual product development commenced in April 2002 and was completed on time and on budget in August 2002. Team Manager and team members were satisfied with the project and considered it a "worthwhile experience". In his function as Managing Director the team manager had line management responsibilities to the PLC Senior Director and continuously maintained close interaction. The senior manager also voiced content with the project outcome.

Initiation Phase

The project was in planning for more than 3 years. Over this period the unit acquired controlling stakes in several Business Park projects across the UK. For that matter, the offices in London, Glasgow, and Aberdeen worked together to identify and evaluate new investment opportunities and to execute acquisitions. Task complexity was considered relatively low, as tasks were fairly predictable, problems analyzable, and

team interdependence moderate. The offices communicated through telephone or e-mail on a regular basis. Face-to-face interaction was restricted to occasional meetings to inspect potential properties. The team manager was updated on progress through the London based team members on a weekly basis in regular face-to-face departmental meetings. Otherwise, the team manager was fairly uninvolved during initiation as he considered his team members to be the experts who "know what they are doing". Also, formalization was low and decision-making was largely consensus-driven. Only in early 2002 this administrative structure was altered. At this point, the team manager decided that the unit had accumulated a reasonably attractive real-estate portfolio that would appeal to investors. In addition, the market conditions seemed favourable to support "a quick and dirty launch". In agreement with senior management the team manager then decided to enter the development phase.

Development Phase

Main objective was to bundle Schroders' portfolio of Business Parks into a marketable property fund that would allow for tax-related benefits. For this reason, the office in Jersey became actively involved in the development process. The team comprised 14 members covering four key functions, including regulatory issues, financial analysis, marketing, and investor relations. Of these, 6 were located in London, 3 in Glasgow, and 5 in Jersey. The team manager insisted on a rapid development process in order to catch a perceived window of opportunity in the market. Accordingly, the actual development time was restricted to 6 weeks, which was only half the time usually allowed for fund developments. Over this period the team manager held daily conference calls with each function that lasted for several hours. He would "devote 90 percent of his time exclusively to this development" and "make sure to be involved in everything, ... every decision, every turn, every change". As work complexity was perceived as extremely high, the team manager circulated daily memos outlining progress, highlighting risks, and summarizing task objectives. In order to "make sure that everybody really understood what was going on" he would also call for weekly face-to-face meetings at the London office attended by the whole team including the Jersey members. The meetings were devoted to short presentations delivered by each function in order to brief the rest of the team on progress. In addition, the team used these personal meetings to address key challenges and to make strategic decisions that were "not the usual day to day fuzz, but

extremely delicate". However, despite "working long hours including weekends" the development deadline had to be postponed for two weeks because of regulatory difficulties detected by the Jersey office.

Implementation

The implementation phase commenced for three months and was concerned with marketing the new fund to the Schroders' main customer base, namely UK pension funds. At that time, the rapid decline of equity markets had caused a surge towards alternative investments and the team manager was eager to utilize this window of opportunity faster than the competition. Accordingly, he and the Head of Investor Relations quickly conceived a product presentation that was to be delivered to Pension Fund Managers. To direct the product launch, the Jersey and London office conducted several teleconferenced meetings per day and held two personal coordination meetings in London.

2.2.4 The lower performing team

In 1996 Schroder Property Investment developed the first fund of its kind to feature a portfolio of properties located in the West End of London. Over the years this 'West End Fund' became a very popular investment vehicle for pension funds and in early 1999 Schroders decided to transfer the issuing house from Schroders London to Schroders Jersey. This move was intended to offer investors additional tax-related benefits. However, at that point in time none of the various Property Investment Subsidiaries was in existence and the project represented the first collaboration between the Property Investment Unit London and Schroders Jersey. Again the Managing Director of the Property Investment Unit was in charge of the development, but in 1999 he was not yet adept with virtual teamwork.

The project commenced in late December1999 and was put on halt in March 2000. After several organizational changes it was continued in late 2000 and eventually completed with a delay of nine months in February 2001. The development was considered a draining experience for all members involved including team manager and senior management.

Initiation Phase

Moving the issuing source from London to Jersey required several intricate internal and regulatory amendments to the fund's statute. Accordingly, task complexity was perceived as high. However, the co-operation with the Jersey office turned out to be a slow and frustrating exercise. At that time the Jersey office was key player in many of Schroders product development activities and involved in several high profile equity deals. As the Jersey staff operated under tremendous internal pressure and time constraints, the local Managing Director showed little consideration for the requests of the Property Investment unit, which was then regarded as a fringe player within the overall organization. As a consequence, the team manager struggled for weeks without notable success to establish an adequate reporting and communication line between the two offices. Phone calls were not transferred or remained unreturned, e-mails got ignored, and several scheduled face-to-face meetings were postponed. Eventually, the team manager relinquished, and complained to the PLC Senior Director, who sent a sharp warning to the Jersey office. After this incident teamwork improved somewhat and a frosty face-to-face meeting was held in London to discuss development.

Development Phase

Despite the team managers' efforts to improve teamwork with Jersey and despite a detailed development plan, the project lingered without noticeable progress for several months. Frustrated with the slow progress the team manager eventually put the project on halt in March 2000. However, at that time the Property Investment unit enjoyed growing popularity with investors and Schroders' senior management decided to extend the unit through further subsidiaries located in Aberdeen and Glasgow. Having established the two Scottish offices in early 2000, it was then determined to create a third fellow subsidiary in Jersey to be inaugurated in October 2000. The team manager admittedly felt the taste of "sweet revenge" and eventually commenced the abandoned project in cooperation with his new Jersey subsidiary in late 2000. Building on his management experience with the two Scottish offices, the team managers established strong reporting lines through e-mail reports on a daily basis. In addition, he held daily conference calls with Jersey to keep communication flowing. While developing the Scottish offices the team manager had acquired some experience with managing virtual teams: "At first I adopted a relatively relaxed

management style, trying not to be too formalized or too intrusive. This always had worked fine with the unit here in London. However, when you manage people from a distance, things are very different. My relaxed management style didn't work there. (...) People did not get the information they needed, communication was slow, (...) the team seemed to be confused and uninformed. (...)." Accordingly, the team manager immediately established strong communication lines with the Jersey office and directed the project through a highly formalized and centralized work process. Eventually, development was completed in December 2000.

Implementation Phase

The implementation phase served the purpose of launching the fund and introducing the Jersey subsidiary to Schroders' client base. To coordinate marketing and launch activities the offices in London, Aberdeen, Glasgow and Jersey had to cooperate closely for the first time. This cooperation was supervised by the team manager who maintained daily teleconferenced meetings between the offices. In addition, four face-to-face meetings were held in London to put the final touches on the launch and to make all unit members personally acquainted. Eventually, the redeveloped fund was delivered to the marketplace on launch deadline but with an overall project delay of nine months.

2.3 Case 3: NM Rothschild & Sons

2.3.1 Background to the organization

NM Rothschild is one of the few remaining privately owned merchant banks having a history of more than 200 years. Today, the organization provides corporate banking, treasury, investment banking, fund management, private banking and trust services to governments, corporations and individuals. As part of the Rothschild global network, NM Rothschild operates three principal businesses in the UK namely Banking Services, Investment Banking, and Treasury and maintains offices in London, Manchester, Leeds and Birmingham. Banking activities encompass both lending and advisory businesses, including project financing, structured finance, asset financing and debt capital markets advice. In these areas the bank acts for corporations, Governments and public private partnerships through raising new debt and advising on project finance.

In 2002 NM Rothschild reported a 44 per cent fall in pre-tax profit as operating profit declined to £89.8m, against £127.4m in 2001. The fall in revenues reflects reduced global Merger and Acquisition (M&A) activities over this period. In the same year, however, the firm succeeded in winning several large M&A mandates, including advising National Grid on its £15bn merger with Lattice Group and Enterprise Oil on the £4.3bn recommended offer from Shell. More recently, the firm was brought in to give a fairness opinion on the €5bn (£3.2bn) Kingfisher offer for Castorama, the French retailer. For the last 40 years the banks' London arm has been chaired by Sir Evelyn de Rothschild. In early 2003, however, Sir Evelyn announced his retirement and named Baron David de Rothschild, hitherto head of the French subsidiary, his successor.

NM Rothschild's business culture is changing slowly and is described as that of a large old-established corporation with rigid hierarchies and bureaucratic systems. Innovation is neither internally nurtured nor considered a major organizational strength. Overall, the organization remains risk averse with Sir Evelyn being quoted as: "It is not so much the things we do that contribute to our longstanding success, but the things we do not. Our hallmark is stability, security, continuity".

2.3.2 Background to the division

NM Rothschild's Acquisition Finance Team has been involved in the leveraged finance market since 1988, and is part of the UK banking division. For several years the unit provided debt exclusively to companies operating in the oil and gas sector for leveraged buy-outs and acquisitions. However, in 2000 the unit broadened its scope to serve companies in a variety of other sectors. The following case concentrates on two acquisition projects that were among the first not to be related to oil and gas. With offices in London, Manchester, Leeds and Birmingham, the primary focus of the Acquisition Finance team is to arrange and finance transactions in the middle market, with acquisition considerations typically between £5 million and £75 million. In addition, the team can underwrite up to £50 million of senior debt and up to £5 million mezzanine facilities to support these transactions. The unit also works in conjunction with other functions in the bank to provide additional services to clients, such as invoice discounting, asset leasing and hedging arrangements. The unit's foremost aim is described as developing fruitful long-term relationships with clients.

The Acquisition Finance Team is headed by two Directors and comprises a total of 85 associates spread across the unit's four UK offices. Due to this geographic dispersion of members, the unit is adept with virtual teamwork.

2.3.3 The higher performing team

In 2000, NM Rothschild's Acquisition Finance Team acted as main advisor to Gala Group in their £340m acquisition of Ladbrokes Casinos. NM Rothschild participated in the acquisition with £10m in mezzanine facilities and advised Gala Group on refinancing existing debt. Gala Group is the largest licensed bingo business and gaming operator in the UK. The group manages 165 Bingo clubs and owns 20% of all UK casinos, with 26 sites throughout England, and additional sites in the Isle of Man and Gibraltar. It is owned by Credit Suisse First Boston Private Equity (CSFB), the Company's executive management and a number of private investors. However, CSFB is the majority stakeholder. Gala was formed by a management buy-in from Bass in 1997 and subsequently increased its gaming portfolio through several acquisitions. In December 2000 the group acquired Ladbrokes Casinos, which added 29 casinos to Gala's portfolio.

The acquisition was under supervision of the first Director of the Acquisition Finance Team and involved the co-operation between NM Rothschild's Investment Bank and the offices of the Acquisition Finance Team in London and Birmingham. Also, the project involved the close collaboration with Credits Suisse First Boston Private Equity. After an initiation phase of 5 months the project commenced in July 2000 and was completed in December 2000 on time, on budget and to the satisfaction of the client, team manager, team members, and senior management.

Initiation Phase

The project was initiated when Credit Suisse First Boston Private Equity approached NM Rothschild for the advice on the arrangement of mezzanine facilities. After initial discussion at the senior level the Senior Director of NM Rothschild's Merchant Bank handed the project over to the First Director of the Acquisition Finance Team. Tasked with the project, the First Director assembled a core team of experts and called for a face-to-face meeting in London. The core team comprised 12 people including 5 from the Acquisition Finance Team London, 2 from the Acquisition Finance Team Birmingham, 2 from NM Rothschild's Investment Bank London, and 3 external experts from Credit Suisse First Boston Private Equity (CSFB). The initial face-to-face meeting was intended to establish common ground for further cooperation, making the core team personally acquainted and determining the nature and objectives of the project. The team manager had supervised several dispersed teams before and knew the importance of nurturing close group interaction right from the start of a project, stating: "If people are not personally acquainted they will either end up doing nothing at all or go along passively with what others want, which destroys all dynamism". Since the core team only comprised UK-based members and travelling proved relatively effortless, the team manager called for personal face-to-face meetings on a fortnightly basis. These meetings were used for generating ideas and making comprehensive, consensus-driven decisions. Team members particularly appreciated personal meetings as these provided an opportunity to present their work and to verify whether they were "on track". Between face-to-face meetings the core team communicated according to an established pattern of teleconferences. That is, task groups within the team conferred with the team manager twice a day according to a task schedule. The whole team held teleconferences every week on Friday morning.

After 5 months initiation, the core team eventually submitted a detailed acquisition proposal to the senior management of NM Rothschild and CSFB.

Development

With the start of the formal acquisition process the team size was increased to 68 people. That is, each member of the core team recruited additional internal assistance in his or her project area. Only the members of CSFB required no further staff. At this phase the work process was perceived as highly complex, requiring much team interdependence for information gathering, problem solving, idea construction, and comprehensive decision-making. The team manager admittedly appreciated virtual teamwork for a group of up to ten people, however he voiced much disdain for a virtual team of any larger size worrying about effective communication and information distribution. He also voiced discontent for the fact that it proved unfeasible to co-locate the whole team in face-to-face meetings due to time constraints. Accordingly, the team manager maintained daily reporting lines with his core team through telephone and fortnightly face-to-face meetings. To communicate with the rest of the team he introduced daily memos detailing progress, tasks and objectives that were circulated through e-mail. Minor decisions were directly handled through each core member and his or her staff without contacting the team manager. Moderately important decisions were presented and explicated to the team manager through the respective core member before a mutual agreed decision would be made. Major decisions that could seriously affect the project outcome were collectively addressed in the core team's face-to-face meetings. A particular source of conflict formed decision-making on regulatory issues. This was perceived as particularly complex since the acquisition not only had to comply with the UK's law on mergers and acquisitions but also with legislation on public gambling. While the various experts at NM Rothschild held lengthy discussion on the issue without reaching consensus, the people from CSFB added further confusion providing yet another expert opinion. Eventually the team manager was running out of time as well as out of patience and invited all related experts to a personal face-to-face meeting in London. Taking a rather pragmatic viewpoint, the team manager intended to "lock them all up" unless a workable solution was presented. The meeting continued for two days and was structured around a very detailed agenda. After several lengthy and controversial discussions the experts eventually suggested two alternative scenarios both of which

had distinct strengths and weaknesses. Studying the two proposals for few days the team manager made the final decision.

Implementation Phase

The last phase for the Acquisition Finance Team formed the official signing of contracts and the transfer of the project to an external consultancy specialized in post-acquisitions and mergers. The team size was reduced to 8 members who were working on the case full time. Of these, 5 were part of the original core team and 3 had joined the project over development. The work schedule was intense and the team was operating under considerable time constraints. Development had taken more time than initially anticipated and now the team was struggling to meet the deadline. The team manager devoted all of his time to the project and maintained lengthy conference calls to the whole team on a daily basis. Since time was scarce the team authorized each the team member to make all decisions in his/her area of expertise independently without conferring with the team manager beforehand. Also, there was no time left for further face-to-face meetings. Admittedly, the team manager was discontented with the situation, but pushed on with the project to deliver on time. Eventually, the team succeeded in meeting the deadline "taking few shortcuts", but several minor amendments had to be made after implementation.

2.3.4 The lower performing team

In 2001, NM Rothschild's Acquisition Finance team was key mediator in the acquisition of Austrian Tabak through Gallaher Group Plc. Gallaher is an international tobacco manufacturing and wholesale company with headquarters in the UK. The companies' brand portfolio includes Benson and Hedges, Silk Cut, and Mayfair to name but a few. The Group employs around 10,000 people, with manufacturing plants in more than 10 countries. In 2001, the company acquired the Austrian based Austria Tabak AG, an international manufacturing and trading group that concentrates on tobacco manufacturing and wholesaling. The acquisition was prized at Euro 3,5bn of which NM Rothschild contributed £10m primary participation. In addition, the Acquisition Finance team provided the acquisition facility for Gallaher. That is, the unit was main advisor to Gallaher and acted as the mediating underwriter to a number of other participating lending houses.

The project was again under supervision of the first Director of the Acquisition Finance Team and involved the co-operation between NM Rothschild's Investment Bank, NM Rothschild Frankfurt and the offices of the Acquisition Finance Team in London and Birmingham. The project further involved eight international merchant banks. After an initiation phase of 14 months the actual acquisition phase commenced in May 2000 and was completed in February 2001 on time and on budget. Overall the acquisition was considered successful with senior management and clients being satisfied. However, the whole project was split into numerous sub-projects and the following episode concentrates on a particular sub-project where team manager and team members perceived virtual teamwork as ineffective.

Initiation Phase

In his position as project manager the first Director of the Acquisition Finance Team maintained daily reporting lines to all heads of functions involved in the acquisition. However, of all the numerous functions the area of European taxation regulations proved particularly daunting. It involved a team of lawyers at Rothschild London who had to collaborate with their counterparts at Rothschild Germany. Since the area of European taxation regulation was considered of minor importance to the overall project it was decided that instead of establishing an entire sub-group with its own team leader the collaboration was to be directly supervised by the team manager, being the First Director. The team manager, however, had neither expertise in the area nor the time or the interest to interfere with the work of lawyers. As a consequence, the team of four English and three German lawyers was left leaderless without clearly established reporting and communication lines. Communication was limited to occasional phone calls and few e-mail exchanges between individual team members as problems arose. Decision-making formed particularly difficult as "one part of the team did not know what the other part was up to" and the limited information available often was riddled with dubious German to English translations of technical language. Accordingly, none of the members was able or willing to voice an expert opinion and many documents were sent back and forth with requests for clarification resulting in cooperation deadlocks. The busy project manager did neither receive nor demand any report on progress unless a first contractual draft was required. The draft was delivered after several requests through the English lawyers who, admittedly, put much guesswork into it. However, after close examination through the lawyers of

Gallaher and Austria Tabak the draft was irritably rejected as "flawed". The embarrassed project manager called for an investigation and eventually decided to suspend the internal team of lawyers to avoid further damage to the project. For replacement he hired an external law firm, specialized in the area, which handled all further assignments to great satisfaction.

2.4 Case 4: Barclays Capital

2.4.1 Background to the organization

Founded in 1986 and headquartered at Canary Wharf London, Barclays Capital is the investment banking division of Barclays Bank PLC and employs 5500 people in 23 countries. The investment bank works with corporations, financial institutions, governments and supra-nationals to raise funds in global bond and loan markets, trade and project finance, commercial paper, securitizations and in private equity. The firm's investment banking advisory business provides financial structuring and capital raising advice and execution. Also, the bank is recognized as a key player in sterling fixed income, foreign exchange and money markets.

Since 2000 the bank is struggling with weak global equity markets and rows of debt defaults. In early 2003, the parent company Barclays Bank had to raise bad debt provisions at Barclays Capital because of the firm's extraordinarily high exposure. Despite difficult market conditions, however, the investment bank was outperforming competitors throughout 2002 and contributed about 19 per cent of Barclays Bank's group operating profits. This was largely achieved by concentrating on its core business as a focused debt-house and treasury operation.

Headed by Bob Diamond, the business is described as entrepreneurial and competitive with emphasis on flat management structures and non-bureaucratic work processes. Innovation is considered as key to the firms' long-term strategy and several reward and initiation schemes are in place to foster new service development. In addition, the firm maintains one of the most sophisticated technological infrastructures in the industry.

2.4.2 Background to the division

The Corporate Financial Advisory Team comprises debt-focused corporate finance specialists with expertise in corporate strategy & shareholder value, mergers and acquisitions, financial strategy, ratings advisory and financing solutions. The unit combines such broad expertise in a single advisory offering. That is, it provides clients with integrated advice by developing strong linkages between corporate strategy/shareholder value, corporate transactions, broad financial strategy and specific financing solutions. To deliver this, the unit works with all of the arms of

Barclays Capital, in particular coverage and sector-specialist teams, product groups and portfolio management.

The Corporate Financial Advisory Team is headquartered in London to serve clients in Europe and in the Asia-Pacific region, but also maintains a subsidiary in New York for North American clients. In total the unit comprises 85 members headed by one London-based Director and two Managing Directors who are in charge for the London and New York office. The two Managing Directors have line management responsibilities to the Director, who in turn maintains direct reporting lines to the Chief Executive Officer.

2.4.3 The higher performing team

This involved the development of Commercial Mortgage Backed Securities (CMBS). In 2000 Barclays Capital launched Europe's first vehicle to recycle commercial property loans into the public debt markets via a new venture with Merrill Lynch. At that time several US-based investment banks, including Merrill Lynch and Morgan Stanley, repackaged mortgage loans originated by other lenders. However, Barclays Capital was the first both to lend and securitize these loans. That is, the bank bundles loans into debt securities, so called CMBS, and offers these for sale to bond investors. This process then allows loan originators to recycle capital for further lending. Barclays Capital only launches securities when the debt facility is exhausted, using proceeds from bond sales to replenish its lending fund. To facilitate this process Barclays Capital developed a bespoke IT framework to allow it to originate and service its own mortgages. That is, the IT framework was developed to control the collecting of interest and principal payments and to ensure that borrowers remain current.

The project was under supervision of the London-based Managing Director of the Corporate Financial Advisory Team and involved the co-operation between the units' offices in London and New York. Additional internal functions involved were the Public and Private Partnership Project Finance Team as well as the Property Finance Units, and Barclays Capital's IT department. Also, the project was developed in close cooperation with Merrill Lynch New York and a specialized software firm located in Silicon Valley, USA. After an initiation phase of 5 months the project commenced in

October 1999. It was completed in July 2000 delayed but on budget and to the satisfaction of the team manager, team members, and senior management.

Initiation Phase

The project was originated by the Director of the Corporate Financial Advisory Team and his counterpart at Merrill Lynch New York in a fruitful discussion over business lunch. The senior manager then handed the idea over to the Managing Director, who assembled a focus group of ten experts. Of these, 6 were located in London, 2 in New York and 2 at Merrill Lynch New York. The team was tasked with drafting a project outline that would state objectives, timelines, budgets, resources, and software requirements. Working on the proposal for five months, the team maintained daily telephone contact with the team manager. In addition, the team made regular use of a virtual working platform powered by online collaboration software. This platform allowed each team member to access and submit project files and to collaborate synchronously. Also, the platform contained a message board where the team manager left memos on a daily basis summarizing his phone conversations with individual team members and senior management. The message board also served as a medium for the team and the team manager to submit suggestions and to pose questions. Another frequently used feature of the collaboration software was the so-called 'decision-tree'. Under this menu the members posted particularly complex or important issues that needed to be addressed collaboratively. Each team member then had the opportunity to file a suggestion, lead an online discussion, or phone the relevant person directly. However, the final decision was implemented only after approval from the team manager had been received. In addition to impersonal modes of communication, the whole team met face-to-face every month in New York. The meetings were designed to elaborate on particularly complex and important issues such as regulatory and budgetary considerations. Typically the team agreed on two to four possible solutions, which were then presented to the team manager. After studying the proposals and evaluating the arguments, the team manager made the final decision. At the end of the initiation phase the project outline was presented in a personal meeting to the senior management of Barclays Capital and Merrill Lynch.

Development Phase

The development phase formed particularly complex as various functions, hierarchies, experts, offices and companies had to collaborate intensely. To manage a development group of 110 people, the team manager relied heavily on his original core-team. That is, each member of the core team was in charge of a specified development function and would lead a subgroup of people involved in this function. Notwithstanding organizational hierarchies or boundaries, this functional subgroup had to report to and was given order from the core team member who in turn reported directly to the team manager. Usually each single subgroup would operate as a traditional co-located team. The subgroups in aggregate, however, were organizationally and globally dispersed. For example, at a certain development phase the Corporate Financial Advisory Team London had to corporate on the same task with the subsidiary in New York, the Property Finance Unit London, Merrill Lynch New York, and the Software Company in California. Interaction within the core team remained structured around daily conference calls, online collaboration, and regular face-to-face meetings. That is, the team manager insisted on strong verbal reporting and controlling lines within the core team, but did not interfere with group members outside the core team. A potential source of conflict was the relationship to the members of Merrill Lynch who did not readily accept orders or decisions received from the team manager. Instead, they preferred to inform their own senior management before complying or differing with received instructions. As a result, the Barclays Capital members perceived the collaboration with Merrill Lynch as protracted and strenuous.

Implementation Phase

The final three months of the project were mainly concerned with implementing the developed IT framework at Barclays Capital's premises in London. This involved the close cooperation between the external software firm in California and the IT department of Barclays Capital London. In addition, the software firm and the IT department prepared several seminars to educate Barclays Capital personnel in using and maintaining the system. At this phase, the project team was reduced to 28 people and included mainly IT experts. Of the core team, the six London-based members were still closely involved in the project overseeing implementation and running trials (the other 4 members had departed after development). The team manager held daily

face-to-face meetings with the remaining core team as well as with key experts in IT. However, virtual teamwork was restricted to interaction between IT personnel situated in California and London. After several technical difficulties the system was eventually launched with a delay of three weeks.

2.4.4 The lower performing team

From 2000 to 2001, the Corporate Financial Advisory Team advised Thai Airways International Public Company Ltd (THAI) on an extensive aircraft-purchasing programme. The programme involved two purchasing phases and required the arrangement of a $786m facility through Barclays Capital. The first phase was arranged through a traditional financing scheme worth $235 million. However, the second phase was more elaborate in nature and involved a newly developed financing scheme conceived in cooperation with the US EXIM Bank, the UK Export Credit Guarantee Department (EGCD), and the Thai Ministry of Finance. Under the new scheme the credit risk was to be more evenly distributed among participating parties allowing for higher facilities. In July 2001, the second phase was completed giving THAI a $532.8 million facility, fully underwritten by Barclays Capital and supported by the US EXIM Bank and the EGCD. The facility was intended to allow Thailand's national carrier to purchase four Boeing B777-300 aircrafts with Rolls Royce engines. These four deliveries represented the final four B777s in the aircraft-purchasing programme that increased the total number of B777s in the THAI fleet to 14 out of a total of 81 aircrafts.

The second purchasing phase was developed and supervised by the London-based Managing Director of the Corporate Financial Advisory Team and his counterpart at the US EXIM Bank. It further involved the Corporate Financial Advisory Team New York, the UK Export Credit Guarantee Department, the Thai Ministry of Finance as well as Boeing and Rolls Royce. The Corporate Financial Advisory Team was advised by the following external parties: PWC London (corporate finance), Addleshaw Booth London (legal matters), KPMG Birmingham (financial due diligence) and Burlington London (commercial due diligence).

Preparation for the second purchasing phase started in February 2001. The programme was completed in July 2001 with a delay of 2 months but to satisfaction of

the client and senior management. The new financing theme proved highly successful and was subsequently deployed for further financing projects. Nevertheless, team manager and team members voiced frustration with the team performance particularly during the development and implementation phase of the project.

Initiation Phase

The new financing theme was originated when the Director and the two Managing Directors of the Corporate Financial Advisory Team attended the US EXIM Bank annual conference on export credit in Washington. After several conversations with key personnel at US EXIM Bank the Director decided to incorporate the newly acquired insights into the current purchase-programme of THAI airlines. To realize the project he secured the close cooperation with US EXIM Bank and tasked his London-based Managing Director with development. While the early phases of initiation proved relatively effortless, the actual cooperation between the Washington-based US EXIM Bank and the Corporate Financial Advisory Team London formed problematic. Over initiation all interaction between the two parties was restricted to four lengthy face-to-face meetings in Washington as well as occasional phone-calls and e-mail exchanges. Complexity was perceived as moderate, as the team was small and loosely structured around the three Directors of the Corporate Financial Advisory Team and two experts at US EXIM Bank. However, once the five managers had agreed on the project propositions, the complex development phase had to be coordinated.

Development Phase

Task complexity during development was perceived high as tasks were difficult to predict and to analyze and team interdependence was intense. In addition, the team was intricately structured comprising two internal functions based in London, one internal function based in New York, four external advisors based in London, and one external collaborator based in Washington bringing the total of team members to approximately 100 individuals. To coordinate the project, the team held weekly face-to-face meetings with the London-based participants and synchronized all internal functions through Barclays Capital's collaboration software. That is, the team members contacted each other individually through telephone and e-mail to address specific tasks or problems, but used the online collaboration software to receive daily

reports on the general project progress. Also, each participating work group had to submit a written progress report to the online collaboration platform on a weekly basis to keep the rest of the team informed. The team manager promoted an open-door policy wishing to be contacted by every team member through telephone to assist in problem solving. In addition, he maintained daily reporting lines with key personnel, giving broader strategic directives, and engaging in centralized decision-making. While teamwork between the internal functions evolved effortlessly, the cooperation with US EXIM Bank proved problematic. The project required intense collaboration between the two organizations and yet the Managing Director at US EXIM Bank rejected the offer to deploy the collaboration software of Barclays Capital. He insisted that introducing his whole team to the system would be far too time-consuming and costly. Instead, he suggested relying on telephone and e-mail as the main modes of communication. In addition, he declined to submit a weekly progress report to Barclays Capital dismissing the suggestion as "superfluous" and "unworkable". The lack of agreement between the two Managing Directors created a working environment of underlying tensions, which was perceived by team members as "indirect rivalry". Also, the pure reliance on telephone and e-mail made co-operation "slow and painful" resulting in severe communication impasses. After several team members criticized the apparent lack of information and coordination, the team manager filed a complaint with senior management. However, he was informed about the utmost importance of maintaining a healthy relationship with US EXIM Bank and to carry on with the project. Frustrated with the lack of support, lack of teamwork and lack of information, the team manager accepted sole responsibility for the project henceforth insisting on purely centralized decision-making. After several weeks of strenuous cooperation the development phase was eventually completed with a delay of 7 weeks.

Implementation Phase

The implementation phase was centred on finalizing the purchasing contracts and providing the agreed cash facilities. Despite the delay in development, both client and senior management were content with the new finance programme as it provided higher capital for the former and better security for the later. Theoretically, the two functions at Barclays Capital and US EXIM Bank had to cooperate closely throughout implementation. In practice, however, the team manager had given up any hope of

establishing effective collaboration and decided to handle the whole implementation phase internally. The internal core-team continued to cooperate through collaboration software, regular face-to-face meetings and intensively scheduled teleconferences. Also, internal key personnel and external consultants were flown to New York twice over implementation to meet with the US based team. The team manager continued to maintain strong reporting lines with his staff, issuing daily instructions to team members and deciding upon all major decisions. Eventually, the project was completed in July 2001 with an overall delay of 2 months. According to team members, the successful completion of the project was to be solely attributed to the skill and determination of the team manager.

2.5 Case 5: Abbey National

2.5.1 Background to the organization

Abbey National is one of the UK's leading financial services providers. It was established as a mutual building society over 150 years ago and converted to a bank in 1989. At the point of conversion, almost all of the Group's income was derived from savings and mortgages. Since then, it has followed a programme of diversification and now offers a wide range of financial services to both personal and business customers. As of March 2003 Abbey National is the sixth largest bank by assets in the UK, the 16th largest in Europe, and the 30th largest in the world. Also, it is the second largest provider of mortgages and savings in the UK. Abbey National's main head offices are in London, Milton Keynes, Bradford, Glasgow and Edinburgh. The Group is also represented globally, with offices in Eire, Isle of Man, Channel Islands, France, Italy, Gibraltar, Hong Kong, Australia and the United States.

The group's activities are divided into retail banking, insurances, and wholesale banking. The following case concentrates on the wholesale banking division, called Abbey National Treasury Services plc. The wholesale unit comprises a Commercial Banking business, including its asset financing, commercial lending, securities financing and risk management activities, as well as a large Investment Portfolio and the Group's Treasury.

In early 2001, the wholesale banking unit suffered from heavy high yield credit losses resulting from bad dept exposure to large cooperate defaults such as Enron and Tyco. Over the same period falling equity markets seriously affected Abbey National's insurance unit. As a consequence, the group's chief executive Ian Harley resigned in July 2002 in a move that left the organization leaderless and fuelled rumours of a takeover through Bank of Ireland. In October 2002 Luqman Arnold was named new Group Chief Executive.

Since 2001 the group and the wholesale banking division in particular is engaged in an extensive restructuring programme. Senior management claims that the groups' structure has moved away from a vertical, silo-based organizational approach, to a flatter, functional structure. Employees, however, describe the organization structure as hierarchical and bureaucratic. In addition, employees complain about the poor

implementation of the restructuring programme, which resulted in an organizational climate of high uncertainty and risk aversion.

New product development is considered important to the firm's overall strategy and a small task force of seven members is in place to foster innovation within the wholesale banking unit. In practice, however, the interruptive restructuring measures over the last three years adjourned major development projects.

2.5.2 Background to the division

From 2000 to 2002, Abbey National Treasury Services plc had developed and launched the worldwide largest European residential mortgage-backed securitization transaction. The transactions were developed and issued via Holmes Financing PLC, a special purpose vehicle established by Abbey National. The whole project was spilt into six transactions each of which represented an own sub-project. The following two episodes refer to the fourth and second transaction.

The project was initiated by the former Managing Director of Wholesale Banking, who supervised the first transaction. In 2001, however, he left the firm and handed the project over to his successor who completed the final five transactions. The following two episodes concentrate on the fourth and second transaction, both of which were under supervision of the newly appointed Managing Director of Wholesale Banking. The project further involved members from Abbey National's securities financing and risk management. In addition, several international investment banks acted as joint lead managers for the transactions.

2.5.3 The higher performing team

In 2002 the Holmes residential mortgage master trust issued its fourth securitization transaction, which included £2.6 billion equivalent mortgage-backed notes, composed of 14 tranches. This fourth mortgage-backed transaction added the Swiss franc to the existing notes portfolio of US dollars, euro, and sterling thereby widening the denominations offered by Abbey National. It was the first issue of asset-backed securities by a European originator into the international segment of the Swiss capital market and the first residential mortgage-backed security from any issuer in this sector. The underlying mortgages were originated by Abbey National plc and were

representative of Abbey National's mortgage portfolio. The project was initiated and developed through Abbey National Treasury Services. In addition, Credit Suisse First Boston and Schroder Salomon Smith Barney were joint lead managers for the US dollar, euro and sterling denominated series. Credit Suisse First Boston was lead manager for the Swiss franc denominated tranche.

Initiation Phase

Over initiation the core team comprised five members who were full-time deployed for the project. All of these were employees at Abbey National, but the team was geographically dispersed with three members being located at the London headquarter, one in Glasgow and one in Edinburgh. Since the team had cooperated before, all members were personally acquainted and appreciated each other's expertise. Task complexity was perceived as moderately high, as the project only required slight amendments to an already existing and successful product. However, team interdependence was very high with all members interacting intensely on a constant basis. To ensure effective communication and information distribution, the team manager deployed daily telephone-conferences in which all members participated. These communication incidents were scheduled according to a set timetable twice a day in the morning and afternoon. In telephone-conferences the team discussed particularly critical issues. Between telephone-conferences team members interacted individually as problems arose either through e-mail or telephone. Throughout the initiation phase face-to-face meetings were considered superfluous because of the familiarity of all members and their experience with the project task. According to the team manager, decision-making remained consensus-driven with the team gathering as much intelligence as possible before reaching a collective decision. The team members, however, describe decision-making as largely centralized. That is, the team manger usually engaged the team in a vivid discussion, pursuing the role of devil's advocate, before making the final decision on his own. Formalization was present in the form of daily memos drafted by the team manager immediately after the second telephone conference and circulated by e-mail to all team members. These memos summarized progress, redefined objectives, and formulated tasks for each single team member. After six weeks of close interaction, the initiation phase was successfully completed.

Development Phase

Development commenced for 9 weeks and added four external experts from Credit Suisse First Boston and Schroder Salomon Smith Barney to the team of five. Due to unexpected regulatory complications task complexity was perceived as high. The team members at Abbey National continued to organize the work process through daily telephone conferences and memos. To incorporate the external members in the work process, the team manager introduced bi-monthly face-to-face meetings held at the London premises of Abbey National. According to team members, decision-making remained centred around the team manager. This, however, resulted in frequent disputes between team manager and the external members about the strategic direction of the project. To resolve discrepancies the team manager invited all members to a clarifying face-to-face meeting in the presence of senior management. Eventually, development was completed with a slight delay of two weeks.

Implementation Phase

After development the project was put on halt for a period of three months over which the team continuously monitored the market to identify a window of opportunity. At this stage, team size was reduced to two members who worked part-time for the project. Team interaction was restricted to occasional telephone calls between the two members and the team manager to evaluate market movements. Once market conditions deemed favourable the whole team united again for three weeks of intense cooperation. To prepare for launch two marketing experts of Abbey National joined the team to assist in the design of presentations, press releases, and brochures. Throughout the last three weeks of teamwork the work process was considered moderately complex and remained structured around daily telephone conferences, daily memos, and three intense face-to-face meetings. Eventually, the team successfully completed the project on time, on budget and to the satisfaction of team members and senior management.

2.5.4 The lower performing team

In early 2001, the Holmes residential mortgage master trust issued its second securitization transaction including mortgage-backed notes totalling £1.6 billion equivalent. The underlying mortgages were again originated by Abbey National plc, but for this transaction Barclays Capital and JP Morgan acted as the arrangers and

joint lead managers. The project was under supervision of the newly appointed Managing Director of Wholesale Banking, who had just joined Abbey National from a competitor. The project was completed after a development time of 5 months with a delay of 6 weeks and over budget. Team manager and team members voiced dissatisfaction with the project and with teamwork. The completed product, however, proved to be a commercial success in the market.

Initiation Phase

Having inherited the project from his predecessor the newly appointed Managing Director initiated the second transaction just one month after joining the firm. With considerable experience in the area of mortgage-backed securitization, he felt well prepared to lead the project as the team manager. However, at that point in time his management expertise was limited to traditional project teams, whose core members were located in close proximity. He had never encountered a situation, where 10 out of 12 core team members were dispersed throughout the country. In a first move, the team manager invited all members to a face-to-face meeting in London to get acquainted and to outline project objectives. To keep the meeting informal and to ensure sufficient social interaction the team was invited for lunch and dinner, leaving all members in high spirits. However, it soon became clear that money and time constraints made further face-to-face meetings unfeasible, leaving the team no other choice but to interact through telephone and e-mail. Over his career the team manager had adopted a management style, which he describes as 'critical but unobtrusive' stating that "I always believed that a manger should guide and advise his people without being disruptive...there is nothing worse than a guy who constantly interferes with people". Accordingly, the team manager maintained an open-door policy being accessible for team members but without monitoring their work too closely. Reflectively, the team manager believed that each team member worked in relative isolation on assigned tasks that corresponded to his/her area of expertise. Also, he assumed that communication within the team evolved naturally out of the work process without the need to be particularly planned or structured. From the viewpoint of team members, however, task execution formed problematic as an apparent lack of inter-team communication resulted in impasses in information distribution. Team members felt "left in the dark" about the strategic direction of the project, the work of other members and the significance of their own contribution. In addition, all team

members were busy individuals who participated in several different projects simultaneously. As a consequence, inter-team communication and interaction suffered due to time constraints and the inaccessibility of team members. Task complexity was generally perceived as high due to the relative novelty of the project. However, the apparent lack of team interaction despite the need for strong team interdependence exponentially increased perceived complexity. Four weeks into the project, the team manager realized that progress was too slow. Also, he had experienced own problems in interacting with team members. In the sixth week the lack of effective teamwork was exposed when four of the team members realized that their work turned out to be incompatible. Eventually, two of the members complained to the senior manager, seriously criticizing project management.

Development Phase

After a lengthy debate with his supervisor the team manager called for another face-to-face meeting in London. In the meeting the problem of effective teamwork was discussed and the following measures were determined: First, the time size was reduced to eight team members. Second, the team agreed on a daily telephone-conference on a set time and with all members participating. Third, the team manager decided to circulate daily memos outlining project progress, individual tasks, and project objectives. Last, the team manager contacted senior management and requested additional funds for a bi-monthly face-to-face meeting attended by the whole team. Working with the new strategy teamwork effectiveness improved dramatically. Particularly, the team appreciated the bi-monthly face-to-face meetings, which were seen as an opportunity to verify issues and to present work progress. Also, these meetings served as valuable platform to incorporate external members from Barclays Capital and JP Morgan who had joined the project for the development phase. Although the team manager describes decision-making as persistently consensus-driven, team members observed a sudden change in decision-making towards a more centralized approach centred on the team manager. Eventually the development phase was completed with a delay of one month. However, the problem of time-constraints remained throughout the project with several team members being unable to participate in telephone-conferences or to attend face-to-face meetings on a regular basis.

Implementation

Over implementation overall work process complexity was perceived particularly high for several reasons. First, the project had already exceeded its proposed timeframe and the launch date had to be postponed twice. To make matters worse market conditions seemed to support an immediate launch. Second, the delay of one month together with the bi-monthly face-to-face meetings had inflated the project's budget. Third, the project delay also resulted in problems with Barclays Capital and JP Morgan who had to exchange their team members due to other obligations. Fourth, the project delay had seriously affected the marketing plan to launch the product, which resulted in additional costs and confusion. Last, there was no time or money left to unite the whole team in face-to-face meetings and most team interaction was restricted to telephone and e-mail. To ensure effective teamwork nonetheless, the team manager increased the telephone conferences from once to twice a day and insisted on the participation of all members. Otherwise, the work process remained structured around the team managers' daily memos, which now listed all tasks on hand with great detail. Also, decision-making was now strongly centred on the team manager. Eventually, the product was launched with an overall delay of six weeks.

2.6 Case 6: Lloyds TSB

2.6.1 Background to the organization

Lloyds TSB is a UK based financial services group and the UK's third largest bank, the origins of which stretch back to the eighteenth century. For the last thirty years the group pursued an extensive merger and acquisition strategy. In 1971, Lloyds Bank bought the controlling interest in BOLSA and merged it with Lloyds Bank Europe to form Lloyds and Bolsa International Bank. This name changed in 1974 to Lloyds Bank International (LBI) and LBI was itself merged into Lloyds Bank in 1986. By the early 1990s, Lloyds Bank merged five of its businesses with the Abbey Life Insurance Company to create Lloyds Abbey Life. In 1995, Cheltenham and Gloucester joined the Lloyds Bank Group. Later the same year, Lloyds Bank Group merged with TSB Group to form Lloyds TSB Group plc. In September 1996, Lloyds Abbey Life became a wholly owned subsidiary of Lloyds TSB Group. More recently, in 1998, Lloyds Bank merged with Trustee Savings Bank and acquired Scottish Widows as well as Cheltenham & Gloucester. Today the group provides the whole range of financial services including consumer banking, corporate banking, and insurances. As of October 2002, the group comprises 81,000 employees worldwide with approximately 2,000 branches in the UK and maintains an International presence in a number of overseas markets, notably the Americas (Brazil, Argentina, Colombia, USA), New Zealand, and Asia (Hong Kong, Malaysia, Singapore).

The following case concentrates on Lloyds TSB's corporate banking division. Corporate banking is part of the Wholesale & International Division of the Lloyds TSB Group and provides a banking, financial and advisory service to the corporate marketplace. More specifically, the Wholesale & International Division looks after relationships with major UK and multinational companies, banks and institutions, and corporate businesses, together with activities in financial markets. This is managed through offices in the UK and a number of locations overseas, including New York. From the year 2000 to 2003 the corporate banking division suffered from significantly reduced net profits due to bad dept provisions, deteriorating equity markets, and high exposure to the desolate Argentinean market. In 2002, as a consequence, Lloyds TSB cut a total of 3,000 jobs including 1,500 redundancies in the corporate banking division.

The overall business structure is that of hierarchically managed functional departments brought together in multidisciplinary project teams to develop and launch products. In some cases the project manager continues as the product manager. The business culture is changing towards a more entrepreneurial approach. Failure is accepted where it can be demonstrated as part of learning and the need for innovation is supported at main board level. To foster innovation the corporate banking division has a team of eight people in place who organize focus groups with employees to identify potential new ideas. This team also assists individual innovators to develop their idea into a marketable product.

2.6.2 Background to the division

Lloyds TSB Financial Institutions & International Trade Finance (LFI) is part of the corporate banking division and provides advice to other financial institutions. More specifically, LFI delivers expert funding, liquidity and payment services to financial institutions, capital goods buyers and project sponsors in the UK and the rest of the world - including government ministries and export agencies. Based in London the LFI is supervised by one Managing Director and comprises ca. 110 individuals working with around 1200 banking groups worldwide. The division is structured around four specialized teams: First, the UK based Regional International Business team, who works with corporate businesses in an advisory and support capacity to deliver payment solutions such as Letters of Credit. Second, the Structured Export Finance team providing consultancy in financial services to other banks, agencies and governments. Third, the Specialist Insurance Team, which works to support the banking and financial requirements of large insurance companies. Last, the Relationship Banking Team looking after the distinct banking requirements of financial institutions worldwide.

In 2000, the Director of the Relationship Banking Team originated the idea of developing an e-banking service, which enables internet-access to international accounts for financial services. His customers in the Financial Institution market had told him that a key requirement from their bank was to be able to gain access to tools to establish their cash position on a real time basis. With this requirement in mind, the Director devised a project proposal, which aimed at developing an Internet based service to enable Financial Institutions to access balance, transaction and advice

details on their accounts held with Lloyds TSB Bank. By using this service, Financial Institutions would be able both to view online and also download intra day balance, statement and advice information into their respective systems or applications thus enabling reconciliation of their cash position intraday. The development was initiated in late 2000, but was put on halt after complications in early 2001.This episode is comprised in the case of the lower performing team, which, for chronological reasons, is discussed first. However, in mid 2001 the project commenced and was successfully completed in early 2002. This episode forms part of the higher performing team and is examined later.

2.6.3 The lower performing team

Initiation Phase

Once the Director of Relationship Banking had completed the first draft for a proposal, he initiated some market research discussing the need for an e-banking service with several clients. It soon became clear that the clients not only welcomed the idea, but also signalled much interest in participating in the development to later adapt the service for their own businesses. Most prominently, Alpha Bank of Greece and Bankhaus Metzler of Germany were willing to co-fund the project. Encouraged by the positive response, the Director then contacted his supervisor, the Managing Director of LFI, who in turn discussed the issue with the Head of Corporate Banking. Once senior management had approved the project, a task force of 17 members was formed with the Director of Relationship Banking being appointed team manager. The task force comprised 8 internal members, all recruited within the LFI division, and 9 external members including 5 experts from Cogent, a London based IT company specialized in software developments for financial services, and 4 members from Alpha Bank, all of which were located in Athens. Since Alpha Bank acted as one of the main project sponsors the bank insisted on being closely involved in development. Throughout the initiation phase task complexity was perceived as high due to the novelty of the development and high interdependence in a team that had never worked together before. To structure the work process, the team manager introduced an online project log. That is, an online communication platform was established designed to share important information, pose questions, and contribute ideas. Most importantly, the project log provided a medium to visualize project progress. The team manager explains: "The project log shows all 'to do' tasks and all tasks that have been already

completed together with remarks from me or other team members. It is an indicator that shows us where we stand and where we are going. It was daily routine for all team members to visit the log and make entries. All members, even the external ones, made heavy use of it. It served as a map for the team." In addition to the project log, the team manager established a weekly communication plan, in which inter-team communication incidents were scheduled. Typically, the whole team held a two-hours videoconference every Monday morning as well as online discussion sessions three to four times per week. These communication incidents were structure around a predefined agenda, which was derived out of the project log. In between planned communication incidents, the team interacted individually through e-mail or telephone when the need arose. Decision-making on minor day-to-day issues was left to the discretion of individual team members. For moderately important decisions the team manager was consulted. For major decisions the team manager conferred with the senior management of all organizations involved. Eventually, the initiation phase was completed according to schedule and with all team members being satisfied with the quality of teamwork.

Development Phase

The development phase was to be mainly driven by the IT experts of Cogent, who were in charge of system development. However, problems started when Alpha Bank failed to transfer the second transaction of project funds. In addition, Alpha Bank's team members, who had actively and enthusiastically participated throughout initiation, suddenly seemed withdrawn and inaccessible. After several unsuccessful attempts to contact senior management at Alpha Bank, the team manager reported to his supervisor. As it turned out, Alpha Bank had lost interest in the project due to internal organizational changes and had decided to withdraw from the project. Eventually, the team manager received instructions from senior management to either find an alternative sponsor or to terminate the project. As an alternative sponsor could not immediately be found, the project was put on halt ad infinitum.

2.6.4 The higher performing team

Initiation Phase

After termination of the project, the angry team manager contacted several clients to present the already well-advanced project plan and to ask for sponsorship. However, at that time market conditions for wholesale and investment banks had deteriorated and many institutions were cutting costs and reducing headcount. Accordingly, the search for a potential investor, prepared to carry the main burden of development costs, remained fruitless. In a last effort the team manager contacted the innovation team at Lloyds TSB asking for support. In cooperation with the innovation team he then revised the project proposal, cut back on development costs, and presented the new proposal to the Head of Corporate Banking. In June 2001, senior management eventually approved the new project plan and allocated sufficient resources for development. No external sponsors participated. Once approved, the team manager quickly assembled his former team of experts and invited Cogent to rejoin the project. The new development team comprised 10 members, 5 from LFI and 5 from Cogent, who resumed working around a well-structured project plan. Again, the team deployed the online project log to coordinate their activities and to monitor progress. Throughout the initiation phase task complexity was perceived as moderately high with all team members being already acquainted with the nature of the project. While the team manager insisted on being consulted for particularly complex or risky decisions, the general understanding was that most decisions were made collectively. Communication incidents within the team were structured through a predefined communication schedule, which detailed timing and content of team meetings. Since all team members were located in the same city, albeit in different locations, the team manager arranged for bi-monthly face-to-face meetings held at Lloyds TSB headquarters.

Development Phase

Once all system requirements and specifications had been determined the project was handed over to the IT specialists at Cogent who executed the actual development. As such, the team temporarily dissolved and limited all interaction to an occasional exchange of ideas or an update on development progress. Only the team manager maintained continuous communication with his counterpart at Cogent. After a

development phase of 4 months Cogent delivered the software programme on time and on budget.

Implementation Phase

The technical implementation of the new e-banking service was under supervision of Cogent. It was implemented at Cogent's headquarters in London. However, the task of marketing the new service remained in the hands of the development team at Lloyds TSB. To organize for launch the team was joined by members of the marketing department, who were located in the same building. The team manager now was in charge of two teams, the marketing group and the implementation group. While both groups operated independently from each other, the team manager ensured that both were kept informed about the overall project progress. As such, the work process remained structured through the online project log as well as a set communication schedule. However, communication incidents now were organized purely as face-to-face meetings with either one of the teams or both teams attending. Impersonal communication through telephone or e-mail occurred between individual team members on ad hoc basis. With the launch date approaching overall work process complexity was perceived as very high. Decision-making now was largely centred on the team manager, who, out of time constraints, had to reach quick conclusions without consulting the whole team first. Eventually, the new service was launched on time and on budget with the team and senior management being satisfied with team performance. After implementation and launch only minor technical problems remained to be resolved.

2.7 Case 7: Bank of Scotland

2.7.1 Background to the organization

Bank of Scotland forms part of the HBOS group, which was created out of the merger of Bank of Scotland and Halifax in September 2001. The HBOS Group comprises five divisions, namely retail banking, business banking, corporate banking, treasury as well as insurance and investment. The following case concentrates on the corporate banking division, which includes the business base of Bank of Scotland corporate banking, together with certain structured finance activities based in Halifax Group Treasury & Wholesale Banking. The division offers a wide range of banking products to all industry sectors including corporate deposit services, payment services, electronic banking services, specialist services, and asset finance services. In particular, the division is specialized in integrated finance solution including management buy-outs and acquisition and development funding. The bank believes that the key to creating sustainable competitive advantage lies in developing long-term relationships with their corporate clients. Despite difficult market conditions HBOS and Bank of Scotland achieved steady revenue growth from the year 2001 to 2003. According to market analysts, this growth was stimulated through aggressive customer acquisition. Unlike the rest of the market, HBOS maintained their level of headcount from the year 2001 onwards.

One of the main objectives of the merger between Bank of Scotland and Halifax was to restructure both organizations and to eliminate any form of superfluous bureaucracy. Today's business structure is described as relatively flat and functional with few formal hierarchies. The business culture is characterized as open, friendly, and supportive with tolerance for occasional failure. Innovation is important to the firm's long-term strategy and a small task force of 12 people is in place to foster creativity and innovativeness among employees.

2.7.2 Background to the division

The following case concentrates on the area of specialized funding solutions and on the Integrated Finance Unit (IFU) of Bank of Scotland's corporate banking division. Building on its position as a leading provider of senior debt for management buy-outs, Bank of Scotland launched IFU as a novelty in the market in early 2000. The IFU was established to facilitate management buy-outs and to provide acquisition or

development finance to companies with either modest growth projections or no planned exit strategy, which may make them unattractive to traditional private equity investors. The IFU provides advice on both, management buy-outs and acquisition and development funding to a variety of industry sectors. For management buy-outs the IFU provides funding solutions for corporates, business owners and private equity houses seeking full or partial exits from quality, cash generative businesses. The funding packages delivered by IFU allow incumbent management teams to acquire businesses from such vendors. The funding packages are structured for long term running yield rather than short to medium term equity appreciation and this approach enables management teams to obtain both equity and operational control, thereby leaving any exit decision in their hands. In the area of acquisition and development funding, the IFU provides a solution where a company's acquisition or development funding requirements cannot be met from traditional funding sources. With its focus on long term running yield, the IFU provides management teams with the capital base to build value in a business without the pressures of delivering rapid growth or an early equity return for shareholders. To do this, the IFU structures flexible debt packages, typically of between £10million and £50 million, using a mix of senior debt, mezzanine debt, loan stock and equity.

The IFU is supervised by the Head of Integrated Finance and comprises 30 individuals located in Edinburgh, Glasgow and London. This geographic dispersion of employees makes virtual teamwork mandatory. In addition, the whole corporate banking division understands itself as a virtual organization. With 20 offices throughout the UK and 13 subsidiaries worldwide, business processes are generally based on impersonal interaction supported by a broad technological infrastructure.

2.7.3 The higher performing team

This involved the development of an Integrated Finance product for HM Plant Ltd. HM Plant Ltd are a leading supplier of new and used capital equipment to the industrial, construction, mining, quarrying, waste management and demolition industries in the UK and Ireland and have grown organically to a turnover of £90 million with a total of 10 depots across the UK. As of 2003, the company is the only distributor of capital equipment in the UK with a nation-wide network of depots and 24-hour service capabilities.

In 1999, HM Plant Ltd was the subject of a secondary management buy-out backed by Alchemy Partners and Bank of Scotland Structured Finance. In late 2000 management began considering ways of buying out Alchemy Partners to enable majority ownership of the business to pass to management. Following discussions with the Glasgow Structured Finance team, management were put in touch with the Integrated Finance Unit who, in April 2001, structured a £27 million integrated debt plus equity funding package comprising senior debt, mezzanine debt and loan stock together with a subscription for a minority equity stake. By using the Integrated Finance product to fund the tertiary management buy-out, the management team were able to obtain long term funding and a majority equity stake in their business.

The IFU team was supervised by an experienced Managing Director, who has been with the company for more than 10 years. The team comprised specialists from all three IFU offices including Edinburgh, Glasgow and London. In addition, the team was joined by experts from Bank of Scotland's Structured Finance Unit.

Initiation Phase

Throughout project execution, the team comprised 7 internal members dispersed across 3 locations. Of these, 4 were part of IFU while 3 joined the project from the Structured Finance Unit. Overall work process complexity was perceived as moderate because all team members were personally acquainted and had cooperated on similar projects before. Throughout initiation the team manager insisted on close interaction with the client as well as with all internal team members. It was important to him, that the team obtained a clear understanding of the nature of the development and the client's unique requirements. Building on his experience in the area as well as with virtual teamwork he was aware of the usual pitfalls of development projects. The team manager explains: "I think it is of paramount importance, that the development team listens carefully to the client. Most projects go wrong because people simply follow their usual routine when developing a product without really knowing what the customer actually needs or expects. In the end, both developer and customer are disappointed with the poor implementation of the product. (...) Listening to people is particularly difficult when you are dealing with a virtual team. Much information, especially that between the lines, simply gets lost." To incorporate the client into development, the team manager organized three initial face-to-face meetings held at

the client's site, in which all team members participated. These meetings served as a platform to get acquainted with the client and to discuss the project requirements in detail. To structure the meetings, the team designed a predefined agenda and deployed detailed checklists and questionnaires. The team also agreed on the process of decision-making at the start of the project. Typically, the whole team would confer on particular relevant issues before determining two to four possible solutions. The team manager then would discuss the potential solutions with the client, making a recommendation. The final decision, however, rested with the client. In between face-to-face meetings the team conferred through telephone and e-mail on ad hoc basis. Throughout the project formalization was limited to a written project proposal, the so-called 'Agenda'. The agenda was devised co-jointly by the entire team over the early stages of the initiation phase. Once completed, the agenda was a comprehensive document of almost 300 pages that outlined each project area with some detail. Apart from the bi-monthly updated agenda there were no formalized lines of directing or reporting in place. Instead, the team manager conferred with each team member on an ad hoc basis when the need arose. The initiation phase was completed after 8 weeks to the satisfaction of all participants.

Development Phase

Since the client requested quick product delivery, development time was limited to only three weeks instead of the usual five. Accordingly, overall work process complexity was perceived as high with the whole team interacting intensely to meet the deadline. Decision-making was mostly left to the discretion of each individual team member, because neither the team nor the team manager had the time to contemplate about problems others than major issues. To keep the client updated, the team manager arranged for weekly face-to-face meetings, attended by him and two other key members. Development went smoothly, but the team manager remains cautious: "When you are under time pressure you need to be very well organized, particularly in a virtual team. Everybody has to know precisely what he is expected to do, where the project is going to, where the pitfalls are. In a virtual team, there is no opportunity to double-check if you do not understand an issue. You can try to telephone or e-mail, or just wait for the next meeting. But all that costs time and time is all you don't have." Working long hours including weekends the team completed development with a slight delay of three days.

Implementation Phase

The last four weeks of the project involved the implementation of the £27 million integrated debt equity-funding package. This required close cooperation between IFU, the Structured Finance Unit, and the client. In addition, the project was supported by members of Bank of Scotland's corporate deposit services as well as a group of lawyers and solicitors. Throughout implementation, two face-to-face meetings were held in London as well as at the client's headquarters. To reach conclusions on particularly risky and important decision, the team manager now conferred with senior management including the Head of Integrated Finance and the Head of Corporate Banking. Eventually the project was completed on time, and to the satisfaction of the client, the team, and senior management.

2.7.4 The lower performing team

In addition to funding management buyouts, the IFU provides development funding to businesses. In the case of easyCar, IFU intended to provide an integrated loan stock and equity funding package to finance the expansion of the car rental business into mainland Europe and the UK. easyCar is a discount car rental created by easyJet entrepreneur Stelios Haji-Ioannou. The Internet-based company offers Mercedes A-class vehicles at substantially reduced prices to its customers.

The project, undertaken in collaboration with NBGI Private Equity, was intended to provide equity investment of £13 million, which was to be equally held by the two parties. In addition, the IFU would provide easyCar with a £13 million loan stock facility. It was agreed that the consortium would then own between 17.5% and 32.7% of the business depending on the value at the time of its eventual initial public offering. In addition, Bank of Scotland was supposed to provide asset finance facilities to fund the new vehicles.

Initiated in early 2000, the project was co-jointly supervised by the Managing Director at IFU and his counterpart at NBGI Private Equity. The team comprised specialists from all three IFU offices in Edinburgh, Glasgow and London as well as specialists from NBGI Private Equity. In addition, the team was joined by experts from Bank of Scotland's Structured Finance Unit. Despite a successful initiation phase product development stalled due to internal discrepancies resulting in a

development delay of three weeks. The client, who was continuously in negotiations with other banks, impatiently withdrew from the project and switched to the competition.

Initiation Phase

The project was initiated at senior management level between Royal Bank of Scotland, NBGI Private Equity, and easyCar. That is, the Head of Corporate Banking assumed the lead negotiations then handed the project over to the Head of Integrated Finance, who, in turn, charged the Managing Director with the supervision of development. In addition, the finance team of NBGI Private Equity joined the project for co-development. Admittedly, the team manager was not very keen on sharing his management role with an external colleague, worrying about role ambiguity and possible discrepancies between the two firms. However, the initiation phase commenced productively with the two teams participating in three lengthy face-to-face meeting held at Bank of Scotland's London premises. The total team size amounted to 42 individuals including 12 members from IFU and 28 members from NBGI Private Equity. Since all financial arrangements concerning project fess had been arranged beforehand at senior level, the team now was free to concentrate their negotiations on development. The face-to-face meetings were structured through a predefined agenda, which outlined all areas and stages of development. Once the project specifications were established, the team continued to co-operate through impersonal communications. That is, the two team managers co-jointly drafted a communication schedule detailing the time and date of videoconferences, which had to be attended by all team members. Typically, the team would hold two videoconferences per week that were structured through a predefined agenda. Between these meetings, individual team members communicated through telephone or e-mail as task execution dictated. The work process was perceived as particularly complex due to a highly volatile physical team structure. That is, the project comprised several team members who joined the project only briefly to execute a specific project task. Once the task was completed these experts departed from the project after few days. This continuous entering and exiting of team members created a highly dynamic work environment, which the incumbent team members found disturbing and confusing. To ensure efficient information distribution, the two team managers asked for brief progress reports submitted by each project function in

writing and on a weekly basis. These reports then were combined into one document, supplemented with directions from the team managers and eventually distributed throughout the team. Decision-making formed problematic, as both team managers had to be consulted for major issues. This process proved very time-consuming with team members first contacting each team manager and then waiting for a response until the two managers had conferred with each other. The process was additionally prolonged for very important decisions, because then the team managers had to consult their supervisors. One such important decision hade to be made towards the end of the initiation phase. The project team had detected that the capital requirements for easyCar were underestimated by £3 million, which increased the required equity investment from £13 million to £16 million. A decision of such magnitude had to be conferred at the highest management level of all participating organizations. However, partly due time constraints and partly due to disagreement, senior management was unable to reach a rapid conclusion, deferring project development for three weeks. In the meantime, the management of easyCar had negotiated a better funding deal with a competitor and, using the delay as an excuse, withdrew from the project.

2.8 Case 8: Deutsche Bank

2.8.1 Background to the organization

Deutsche Bank is one of the leading international financial service providers and Germany's largest bank. With roughly 77,400 employees, the bank serves more than 12 million customers in 75 countries worldwide; more than half of the bank´s staff work outside Germany. While maintaining subsidiaries throughout the world, the group's home market is Europe with a strong position particularly in the German and English market. Deutsche Bank is organized in three groups: Corporate and Investment Banking, Private Clients and Asset Management and Corporate Investments. The following case concentrates on Corporate and Investment Banking, which handles all aspects of corporate finance, including traditional corporate loans and the issuance of corporate bonds and convertibles. The division also advises corporates on mergers and acquisitions as well as divestments and provides support with initial public offerings and capital actions.

Deutsche Bank Group is managed by the Board of Managing Directors, which concentrates on strategic management, resource allocation, risk management and control. After being appointed chairman in 2002, Josef Ackermann embarked on an extensive restructuring programme including the reformation of the group's Board of Directors, the partial disposal of the bank's debt-ridden equity portfolio, and the dismissal of 14.500 staff mainly at the German headquarters. In addition, the bank sold non-core, low-profit businesses and restructured the retail and private banking divisions. Due to it's high exposure to the weak German market Deutsche Bank is struggling with high credit losses, loan defaults, and weak equity markets. Nonetheless, despite heavy profit losses from 2001 to 2003, Deutsche Bank was the best performing of all German banks partly due to its orientation towards international markets.

Under the new management, the business culture is changing dramatically towards a highly entrepreneurial culture. A very rapidly implemented restructuring programme in combination with extensive redundancies has led to a working climate described as competitive, uncertain, and stressful. Innovation and NPD/NSD is neither nurtured internally nor recognized as being of particularly importance to the bank's strategy.

Mitchel Lenson, Chief Operation Officer, explains: "All innovation is fraught with risk. And risk is no longer acceptable. Today we need stability, security, reliability."

2.8.2 Background to the division

Deutsche Bank's Corporate and Investment Banking Division comprises eleven different businesses as well as the acquired businesses of Morgan Grenfell and Bankers Trust. In London, the division has roughly 10,000 employees, is the largest trader on the London Stock Exchange in terms of volume, and is a leading primary dealer in the gilts market. In 2002, the division secured the most advisory work on mergers and acquisitions of all UK-based investment banks.

The following case concentrates on DB Capital Partners, which is the private equity arm of Deutsche Bank AG and forms part of the Corporate and Investment Banking division. With a global team, DB Capital Partners invests in equity and equity-related securities including venture capital, growth financing, leveraged buyouts, mezzanine and private equity funds. As such, DB Capital Partners supports companies across a variety of industries and at all stages of development. The investment groups within DB Capital Partners work together to provide financing at different levels of the capital structure and a broad range of financial instruments. There are five investment groups, namely DB Capital Private Equity, DB Capital Venture Partners, DB Capital Mezzanine Partners, DB Capital Fund Investing, and DB Capital Infrastructure. Overall, DB Capital Partners maintain 13 offices located in the Americas, Europe, Asia, and Australia and comprise more than 140 individuals. The division is supervised by the Global Head of DB Capital Partners located in New York as well as 13 Managing Directors in charge of regional offices. Due to the global dispersion of offices, virtual teamwork is mandatory and supported by sophisticated Information Communication Technology. In addition, all division members maintain a busy travel schedule.

2.8.3 The higher performing team

This involved the development of a particularly complex service for Expamet International Ltd that combined a public to private transfer with acquisition requirements. Expamet International Ltd is a leading manufacturer and distributor of a wide range of metal-based products operating under two main trading divisions. The Building division manufactures lintels, plasterers metalwork, fixings, steel faced doors, metal fence spikes and a range of ventilation and other products. The Industrial division is a leading manufacturer of expanded metal products in the UK and Germany.

In January 2002, following a strategic review by the plc board, Expamet was the subject of a public to private transaction backed by DB Capital Partners with the aim of optimizing value for the shareholders. DB Capital Partners acted as advisor and provided a £53.5m senior debt package to assist the transaction. In addition, the plc board approached DB Capital Partners, asking to reconsider funding the acquisition of Olaer Group. Based in France, Olaer Group is one of the world leaders in a number of niche hydraulic components. DB Capital Partners, alongside 3i Birmingham, the existing institutional investor, provided funding to support the acquisition, with Deutsche Bank providing an innovative multi-currency, working capital, senior debt and mezzanine package.

The project was initiated in early 2002 and completed in May 2002, on time and on budget to the satisfaction of senior management and the client. However, the team was less than satisfied with team performance. The project involved the close cooperation between DB Capital Mezzanine Partners London and Paris, DB Capital Private Equity London, and 3i Birmingham. It was co-jointly supervised by the Managing Director of DB Capital Partners London and his counterpart at 3i Birmingham.

Initiation Phase

As usual for Deutsche Bank, the first contact was made at the senior management level of DB Capital Partners and the client. Once the project objectives had been established and all contractual aspects had been negotiated, the project was handed over for development to the Managing Director of DB Capital Partners London. The

Managing Director, in his position as team manager, then assembled a team of experts all of which he had personally known for many years. Initiation commenced for three weeks and comprised 17 individuals dispersed across two units internal to Deutsche Bank but located in different buildings. In addition, the client, based in Hartlepool, was closely involved in planning and screening activities. The team manager had agreed with senior management that all internal team members had to participate in no more than two different projects at a time to ensure their utmost attention and commitment. He explains: "Projects of that kind need full commitment of everyone involved. To get that, you must free people of other duties. This is particularly true if you work as a virtual team. Since all meetings need to be scheduled on short notice, people must have the time to attend them. I cannot go around asking everybody whether this or that time is convenient. I must be able to say: Monday at 10.00 we have a meeting. And this means that really everybody attends." The team's communication incidents were organized through regular coordination meetings with very structured and full agendas. These meetings followed a predefined communication schedule that listed the date and time, the communication mode deployed, the attendees, as well as the task agenda. Throughout project execution team meetings were always held on Monday morning at 10 o'clock. However, the communication modes deployed for these meeting varied from phase to phase. Over initiation the team conducted weekly face-to-face meetings at the London premises of Deutsche Bank. The client, represented by four senior executives, attended some of these meetings to be updated on progress. Between these meetings members interacted frequently: on average more than twice per day and, over a week, with at least ten other team members. This communication mostly followed up decisions made at the previous meeting or gathered information in anticipation of the next meeting. Their first preference of communications was for e-mail and second for telephone. Throughout initiation, the team manager insisted on being contacted before decisions were made. Sometimes, he would listen to the arguments and then agree to the proposed conclusions. Quite regularly, however, he would insist on a different solution or confer with senior management before giving instructions. Also, the team members reported that for virtual teamwork the work process was more formalized than usual. That is, each project function had to distribute a brief progress report by e-mail to all members and to the client on a weekly basis. Conversely, the team manager circulated instruction to his team every morning by e-mail, detailing the

most pressing issues at hand and commenting on general progress. Despite several task-related complications, teamwork was regarded as efficient with high quality of communication, information distribution, and task execution.

Development Phase

Due to several unforeseen complications with the client's assets portfolio evaluation, the project timetable was delayed for two weeks. With the project delayed and the team joined by additional external members, overall work process complexity was perceived as very high. The team size was now increased to 32 members including experts from DB Capital Mezzanine Partners Paris, DB Capital Private Equity London, and 3i Birmingham. To account for the international dispersion of team members, the team manager substituted the weekly face-to-face meetings with video-conferenced meetings, which were still conducted on Monday morning. However, initial cooperation between all divisions proved complicated with some team members not attending meetings or not returning phone calls and e-mails in a timely manner. The team manager continued to distribute daily instructions, but now requested daily work reports from each project function in return. The newly joined team members, however, submitted their reports infrequently and delayed. In particular, the cooperation with Paris and Birmingham proved slow and strenuous. The situation escalated when two team members from Paris and Birmingham failed to attend a video-conferenced meeting with the client. According to project schedule the client had to be kept updated on a weekly basis. For one meeting two experts from Paris and Birmingham were requested to join the session through a video-transmission. When both experts failed to show up without excuse, the furious team manager called for an immediate face-to-face meeting held in London and attended by the Managing Directors of DB Capital Mezzanine Partners Paris and 3i Birmingham. From that point on, cooperation improved somewhat but the London-based team members still perceived teamwork as less than effective with communication impasses and information shortages. Throughout the development phase decision-making remained centred on the team manager, but with a general lack of cooperation the team manager was not contacted for several important decisions.

Implementation Phase

Implementation was stretched over a period of three months interspersed with phases of more and less intense activity. That is, the team first completed the public to private transfer and then executed the acquisition in several stages. For implementation the team adopted a particularly fluid configuration, uniting and dissolving as the project tasks required. Also, there was no further need for team members to be full-time deployed for the project with members joining and leaving when needed. Only the team manager and five associates remained full-time engaged, coordinating implementation and advising the client. The remaining members still perceived overall work process complexity as high because of a highly volatile physical team structure. The team configuration was deemed volatile to the extent that various experts from diverse functional areas joined the team for a short period of time. Once these experts had completed their assignment they departed after only few days of intense collaboration. It proved difficult for the core team members to incorporate the many changing collaborators into the team's daily work processes. To coordinate the participation of the many non-core members, the team manager requested written reports from each collaborator to be submitted after task execution. Conversely, the team manager continued to circulate detailed progress reports throughout the entire team on a daily basis. Decision-making remained centred on the team manager. Over implementation, the team maintained weekly videoconferences still conducted on Monday morning and with all core team members participating on a mandatory basis. Non-core members joined these meetings when requested. Eventually, the project was successfully completed on time, on budget and to the satisfaction of senior management and the client.

2.8.4 The lower performing team

This involved the development of an acquisition project for Bakkavor Group. Bakkavor Group is a major supplier of chilled foods to many of Europe's largest supermarket chains. In 2001, the Group was poised to acquire the UK based food manufacturers, Katsouris Fresh Foods Ltd and Fillo Pastry Limited in the largest corporate acquisition ever to be undertaken by an Icelandic company.

With the London office of a European bank failing to deliver and the time scales tight, DB Capital Partners was approached as one of 4 banks requested to provide a £80m

debt package. Within 8 working days of the introduction, DB Capital Partners had received initial credit approval as well as support from the Loans Distribution team for a £80m sole underwrite. The other banks contacted responded later and were not prepared to offer this commitment. However, problems started when the external transaction advisers insisted on a Deutsche Bank-led co-underwrite along with another bank. Unfortunately, this other bank was unable to obtain final credit approval for more than 50% of their proposed commitment, so a third bank was introduced. When the third bank also failed to obtain final credit approval, the project was temporarily discontinued. After four months of suspension Bakkavor Group commenced the acquisition but with a different consortium of banks excluding DB Capital Partners.

The project was initiated in December 2001 and discontinued in March 2002. Supervised by the Managing Director of DB Capital Partners London, it involved the close cooperation between DB Capital Mezzanine Partners London, DB Capital Private Equity London, DB Capital Partners Germany and two other European banks.

Initiation Phase

Facing a highly competitive situation, the team manager was aware of the need to deliver fast results. Nonetheless, he had to be careful to warrant a proper risk analysis. To ensure fast and efficient project execution, the team manager restricted the team size to 7 members and selected the most experienced experts available. Since all of these were busy professionals, already engaged in other projects, the team manager offered good words as well as substantial bonuses to secure their participation. The team comprised 5 members from DB Capital Partners London and 2 analysts, well informed about the client's industrial area, from DP Capital Partners Germany. To structure interaction, the team manager established three telephone-conferences per day with all team members participating. These meetings were called 'snap-shots', designed as very brief and very intense incidents that addressed the most important issues at hand. To keep the team focused, the team manager tasked an assistant with drafting a structured agenda prior to every meeting. That is, the assistant created the agenda in close cooperation with the team manager and then distributed the document with illustrating material one hour before every meeting through e-mail. In that way, all members were able to prepare for the meeting, formulating questions and

contemplating suggestions. Overall work process complexity was perceived as high not only because of the intricacy of the task but mainly because of time constraints. The team manager admits: "It was a difficult week. The biggest problem was that all team members already had other obligations and absolutely no time for getting involved in yet another project. Still we needed fast and reliable results, so I pressured them into the three meetings (telephone conferences). I knew we could not continue that way for long ....but we had to be faster than the competition". To be able to participate in all telephone conferences the team members used their mobile phones calling from remote places like Hong Kong and Shanghai, from various locations such as airplanes and restaurants, and at very odd hours. Decision-making was purely consensus-driven, with all team members contemplating on possible solutions before reaching a collective conclusion. After only 8 days of initiation the team had completed analysis and was able to respond to the client.

Development Phase

The project commenced with a face-to-face meeting held at the London premises of Deutsche Bank attended by the client and their transaction advisers. As it turned out, the client insisted on a Deutsche Bank-led co-underwrite along with another bank. As such, the team manager put his team on standby waiting to be contacted by the other European bank. When no contact was made for two weeks, the team manager informed the client but received only a short and vague reply. After four weeks without further response, the team manager was notified that the client had parted with their transaction advisers and had postponed the project until further notice. The notice never came.