

Master Degree Thesis

Alignment of an IT-based organisation

An implementation methodology based on RUP to create multi-disciplinary and cross-medial project teams.

Wegener Dagbladen / TC Tubantia

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Abstract

This result of this research will be an implementation methodology to be used in a practical environment for a regional newspaper publisher in The Netherlands. This methodology helps create new project teams with people with different backgrounds (multidisciplinary) working on cross-medial products. The new framework is based on a well-known framework used when implementing Information Systems (IS): RUP.

An IT alignment model has helped to structure the implementation methodology created based on RUP. This alignment model makes sure that all four main areas of any organisation are covered, namely organisation infrastructure and processes, IT infrastructure and processes, business strategy and IT strategy. The implementation methodology also ensures that these four areas stay in balance.

RUP has helped to create an implementation methodology, which is based on theoretical models and principles but also includes practical information that has been validated according to various principles. This implementation methodology can be used for (regional) news publishers forming new and improving existing multi-disciplinary and cross-medial teams.

Executive summary

During the research several problems have been encountered regarding the organisation and the IT aspect of both pilot teams. Both pilot teams were organized in an unprofessional manner, tasks were not assigned to people and these tasks were never monitored to make sure they were completed. The outdated IT infrastructure was regularly a source of frustration for team members resulting in final product with enough room for improvement.

Not enough attention was being paid to the website making it difficult to create new revenue streams and improve the website's number of visitors. The idea of working cross-medially is innovative, however when brought into practice this cross-medial way of working is not being done optimally.

These problems can be solved by upgrading the IT infrastructure and considering a different technological partner or by agreeing on having more flexibility. More IT tools need to be used to codify the information. This information can be used for evaluation purposes and also to share knowledge throughout the organisation.

Possibly someone (new) has to be in charge of stimulating communication between the different team members and between their departments. This way important decisions can be made quickly and objectives can be met.

These changes are necessary if Tubantia is to succeed in creating cross-medial products and generate more revenue. The Internet is the future for any business, and especially for businesses like Tubantia that generate content. The Internet offers so many possibilities to generate revenue with relatively low investments.

The implementation methodology created during this research is a very useful tool that can be used to improve existing multi-disciplinary and cross-medial teams but also help create new teams. This implementation methodology is based on a well-known theoretical implementation methodology that is especially designed to help people design new Information Systems. This implementation methodology has been slightly modified to so that it could be applied to this company.

No investments are required to use this implementation methodology; the only investments that may be necessary depend on the recommendations that are formed based on the methodology. It is important that the people using this implementation methodology take their time to make sure that all four areas of the organisation are covered and are in balance. Anything that may be common sense should not be skipped because even thinking about these ideas can help structure the new pilot team.

1 Introduction

Wegener publishes and distributes eight daily regional newspapers. The core business is their newspaper; the company also exploits other communication media (but to a lesser extent) such as websites, promotional books, leaflets and from time to time audio and video messaging.

Wegener Dagbladen has come to a point where it's forced to expand its core businesses and seek opportunities in other media such as the Internet. A new plan has been designed titled 'Newsroom Of The Future'. The management and head of Editorial Staff working at Twentse Courant (TC) Tubantia in Enschede have introduced this plan. This thesis is meant to help the organisation implement this plan.

This plan prescribes that employees working at the marketing, advertising, editorial and website/IT departments must collaborate to ensure that the overall quality of the newspaper is improved and that revenues increase (with for example advertisements and subscriptions).

Wegener has already executed this plan by starting two pilot teams that are currently working in a cross-medial and multidisciplinary manner. One team is responsible for the content related to sports. The other team is responsible for the publication of a cultural weekly edition. Both teams will be used as sources of information for this paper.

Another aspect of this plan is that employees need to work cross-medially, ensuring that the content is distributed using different communication methods (website, print, audio and video).

The problem with the 'Newsroom of the Future' plan is that it doesn't explain how this idea should be implemented. To ensure that this plan is executed correctly, an implementation methodology must be designed. This methodology guides the people involved to create a new project team.

The organisation's current practice of implementing these changes is based on trial & error, making the chances of success relatively low in comparison to a more structured method.

The ideal situation would be to base this research on an existing implementation methodology with some modifications so that it adapts to the needs of Wegener. A thorough research has led to many different methodologies and frameworks, but none meets all requirements. Therefore some adaptations will have to be made.

1.1 Problem description

Wegener defines the Newsroom of the Future as being cross medial, multidisciplinary and content-driven. It has four important characteristics, namely:

- News is 24/7 and therefore should be cross medial to take advantage of immediate publications on the Internet.
- The content is their core business.
- The editorial process is standardized with possibly some exceptions on regional offices.
- Decision-making and problem solving are done centrally within the organisation.

In the past, breaking news was delayed till the next day to maintain its exclusivity. This will change with the newsroom of the future plan, ensuring that the latest news is published on the Internet as soon as possible. It is no longer the responsibility of the journalist to determine the moment of publication.

Within the Newsroom of the Future all departments are required to collaborate with each other. With the use of the Internet, it is possible to create user-generated content to create some interactivity and community feeling, which hopefully will lead to more revenue streams.

Based on the information obtained from the head of editorial staff, changes that the Newsroom of the Future bring about can be summarised into the following points:

- New projects that are planned to take a long period of time (whatever the media type) will start with a cross-medial concept, so that background information, research or (print) specials are delivered in a cross-medial package.
- Different media types will be used for the distribution of the news. These can be print, Internet, moving pictures (video), sound, mobile and narrow casting.
- News managers solve problems centrally. On the work floor, the edition chief is responsible for the cross-medial approach.
- News managers decide on long-term planning. They delegate the daily tasks to chiefs and heads of departments.
- The quick delivery of news causes a change in the content of the printed newspaper. It is therefore important to change the content in the newspaper to more in-depth stories. The content on the website must contain more background information so that the difference between the online content and the printed content is visible.
- With the increasing opportunities of user-generated video clips and videos made by reporters/photographers it may be wise to stimulate the use of these videos for the final product.

Research has been done by TC Tubantia to identify the wishes of the employees that will be affected by this new Newsroom of the Future plan. It has to be noted that this research was in no way theoretical nor done using accurate information retrieval methods, but has only been included in this research to give some background information regarding the attitude of the employees with respect to the Newsroom of the Future plan.

This research shows that there is a lack of motivation and willingness from personnel to cooperate with the change. The conclusion was that people are unfamiliar with the possible changes and a lot of frustration regarding the cross-medial future is present. This frustration is due to the lack of guidance and information regarding the project is not being shared. Employees are also frustrated because of the aged technology they have to work with. Because of this, employees demand that the technology is updated before starting with the Newsroom of the Future.

In summary: 70-80% of employees have a neutral attitude towards the Newsroom of the Future, 10-15% are totally against it and 10-15% are totally in favour of the new plan (again, these numbers should not be taken too seriously but can be used as a guideline).

In this plan, the head of editorial staff gave some conclusions, in terms of how the Newsroom of the Future should be set up:

- The head of editorial staff and the publisher have to agree on a clear vision of the cross-medial future.

- Give openness regarding the transformation of the organisation. Give a deadline of when the plan should be finalized.
- Ensure that the technology is updated so that the plan can be executed.
- Train the employees so that they can work with the new technology.
- A transparent cross-medial organisation prevents uncertainty within the workforce.
- Make sure that management has gained the trust of their employees, ensuring that enough information is shared between all levels of the organisation.
- Create a group of people that are excited to start with this project to develop new ideas and investigate whether they can be realized.

For a successful introduction of the Newsroom of the Future, according to the head of editorial staff it is a prerequisite that the technological process is as simple as possible. It should facilitate journalists to create the content (pictures, films and text) via e-mail or SMS with the help of smart phones. The conclusions of this technological investigation lead by the head of editorial staff are as follows:

- It is important that a central application is implemented for the whole organisation.
- All journalists should be able to have a connection to the network using WIFI hotspots and UMTS.
- Make sure that employees that have to work with the technology are properly trained. The technology should also be easy to use.
- Besides using Nokia mobile phones, make sure that digital cameras are also being used to capture images, sounds and videos.
- Carefully identify the bottlenecks that may affect processes in a negative way.

Employees are not motivated to make the step to the Newsroom of the Future. According to the employees and the IT department, technology is also a problem. The current technology is not stable enough to cope with the changes.

1.2 Implementation methodology

The result of this research is an implementation methodology that can be used to solve the issues that have been mentioned in the plan regarding the newsroom of the future. This framework or implementation methodology is necessary to structure this research.

The implementation methodology is meant to facilitate stakeholders (management, IT department and journalists) to communicate with each other. The purpose of the methodology is by no means to solve any existing attitude problems related to motivation and resistance to change that may interfere with the communication but rather focuses on facilitating the communication.

To prevent spending too much time on designing a new implementation method, some research has to be done to find out what implementation methods currently exist. It may be the case that no perfect framework exists and therefore a combination of the elements from several frameworks has to be used.

The research will focus on the three most known implementation methods, namely PRINCE2, System Development Life Cycle (SDLC) and Rational Unified Process (RUP).

PRINCE2

PRINCE2 is a well-known project framework being used by several companies such as British Rail, Nat West, Hitachi, etc. Some of the many features of this methodology are (CCTA, 1989):

- A defined project management structure.
- Flexible decision-making points.
- A system of plans for resources and technical issues.
- A set of control procedures.
- A focus on product deliverables to the client.
- A focus on project deliverables throughout the project.

The advantage of PRINCE2 is that the method is independent of the application domain such as IT software development, marketing, building and construction, and change management. Because of this PRINCE2 is generically applicable to any project. PRINCE2 provides a layer over the disciplines that are needed in the project because it defines a flexible “project language” that suits multidisciplinary project teams. Therefore, the method bridges the gap between IT and Business for instance (Charvat, 2003). Furthermore this method is applicable to small and large mega-projects.

However, people who want to apply PRINCE2 should be aware that the method is not a solution for any project. People who use PRINCE2 might apply and interpret the methodology in a rigid way and do not customize it to the project (Charvat, 2003). See for a real-life example of PRINCE2 in an organisation Appendix A.

System Development Life Cycle (SDLC) Methodology

Many projects follow the classic waterfall approach, which is straightforward to conceptualize. People using this methodology need to focus on the logical progression of what has to be done. The SDLC is in essence a waterfall methodology. This methodology consists of the following phases (Fitzgerald, 2000):

- Needs analysis: used to determine the specific requirements for the proposed solution. This analysis helps identifying the exact business and functional requirements.
- Project concept: establishes the business objectives and assumptions, risks and deliverables into a project concept.
- Project design: create and/or formulate the design for the solution.
- Project training: the people involved are trained to use the new solution.
- Project delivery: this is done after training and ensures that the project is delivered at the relevant location(s) within schedule.
- Project support: ensures that the necessary support for the solution has been coordinated and managed.

This methodology is fairly straightforward as it follows the waterfall methodology and can be applied to any thinkable project in which a solution has to be designed and implemented. See for a real-life example of SDLC in an organisation Appendix A.

The Rational Unified Process (RUP)

This implementation framework is based on a Web-enabled software engineering process that enhances team productivity and delivers software best practices to all team members. The Rational Unified Process is unique in that it allows development teams to recognize the full benefits of the Unified Modelling Language (UML), software automation, and other industry best practices (Kuncher, 2000).

The Rational Unified Process is the software engineering method of the Rational Software Corporation. It is an iterative, object-oriented, controlled and tool-supported method applicable to all sorts of software development projects. The RUP enjoys a considerable popularity in the software industry, especially amongst users of Rational's modelling and implementation support tools (Kuncher, 2000).

The RUP is a good framework, structured along a number of workflows, which group different kinds of activities such as business modelling, requirements, analysis and design, implementation, test and deployment, but also project management and configuration and change management (Kuncher, 2000).

The RUP however is more focused on the development of software rather than organisational changes. Nevertheless, this framework does include four main components (tools, techniques, templates and guidelines) that can be used in a setting much like the one this research is about (Kuncher, 2000).

This methodology includes the following four components (Kuncher, 2000):

- Guidelines that specify the steps necessary for a successful project team.
- Techniques that describe how an activity should be undertaken.
- Tools that are linked to a technique and is used to ensure that an activity is undertaken in the most effective way. These tools don't necessarily have to be software tools, but can also be designing tools such as UML that help manage and design projects. The five tools that have to be incorporated are:
 - Data gathering tools: tools that help gather relevant information that is required to make appropriate decisions.
 - Decision-making tools: tools that help the people involved to make the right decisions.
 - Design tools: tools that help design the solution that has to be implemented.
 - Change tools: tools that monitor the changes within the organisation after the introduction of the solution.
 - Evaluation tools: tools that help evaluate the whole process from information gathering to making the changes.
- Templates (reusable documents and checklists) that provide advice and assistance in completing tasks.

See for a real-life example of RUP in an organisation Appendix A.

Comparison

From this selection of frameworks, the most relevant one will have to be chosen so that it can be used for this research. Table 1 summarizes the results.

Table 1 Comparison of the different implementation methodologies

Methodology	Advantages	Disadvantages
RUP	A good description with concrete deliverables that are needed for a good implementation methodology. Such a methodology could be used in any setting.	It focuses more on software implementation instead of organisational and technological changes.
PRINCE2	Has a clear list of concrete tasks that have to be followed for a good implementation.	The framework may be too rigid due to the fact that the implementation methodology may have to change (greatly) from case to case.
SDLC	Gives a very general idea of what should be included in any implementation process. This general idea is already widely known by many people.	This framework has no explicit suggestions and/or recommendations that can be used for organisations that are not used to using implementation methodologies.

PRINCE2 can be optimally used when the requirements and processes involved of the project are known beforehand. At Tubantia however the requirements are not known at the beginning and the implementation methodology is supposed to help management and employees to form these requirements along the way. PRINCE2 is also a very rigid framework, which contradicts the idea of creating an implementation methodology for Tubantia that would help for any kind of multi-disciplinary and cross-medial team.

The SDLC methodology helps breakdown the processes involved in a project by using for example Gantt charts. The breaking down of the processes can be useful to manage the progress of the team and ensure that objectives are met. However, in this case even the team processes involved are unknown beforehand and therefore no breaking down can be done. Because of this SDLC is not a good basis for an implementation methodology at Tubantia.

The RUP is a very straightforward methodology that is currently being used in the software development sector but with some minor adjustments can be appropriately used for this research. The advantage of this methodology is that it describes what the deliverables should be before the project is to be implemented. These deliverables (tools, techniques, templates and guidelines) can be used as guidelines for any kind of project team within the same organisation. RUP is not dependent on concrete requirements nor does it focus on breaking down processes but rather helps design the processes. Because of these advantages, RUP will be used for this research.

2 Research model

There are two main elements that have to be analyzed in order to create an implementation methodology that is useful for TC Tubantia. These two main elements are technology and organisation. (Information) Technology (computers, internet, cameras, software, etc) helps employees with their tasks. Organisation processes are necessary to determine the long-term strategy and the short-term planning.

Every business has to think about their long-term and short-term goals. The long-term involvement of technology is supported by the IT infrastructure. The IT processes support the day-to-day tasks and are therefore responsible for the short-term goals. With regard to the organisation, long-term strategies and short-term planning are present. These 4 areas make the business complete and ensure that everything runs smoothly.

2.1 Theoretical model

To give some body to the implementation method, the alignment model introduced by Wijnhoven et al. (2006) will be used. This model is based on another alignment model designed by Henderson and Venkatraman (1992) shown in Figure 1.

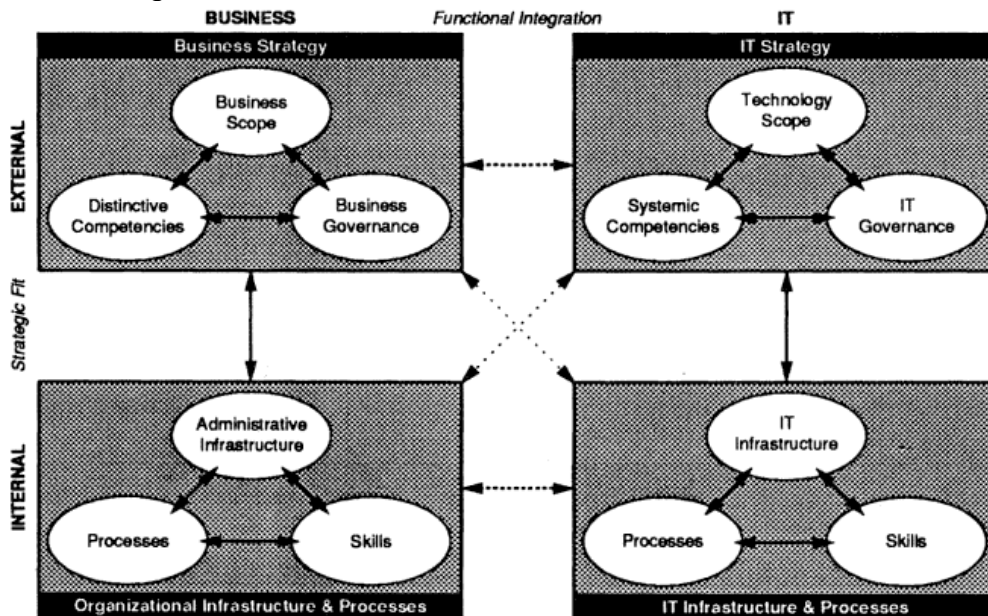


Figure 1 Original alignment model (Henderson & Venkatraman, 1992)

This model is adequate for this research because it highlights the four main problem areas that are and will be present when setting up a multi-disciplinary team. The model also depicts the relations between these areas, indicating that the goal is not to tackle all of these four areas individually but rather as a whole. This model has been simplified to give it a more abstract character to suit this research (Figure 2).

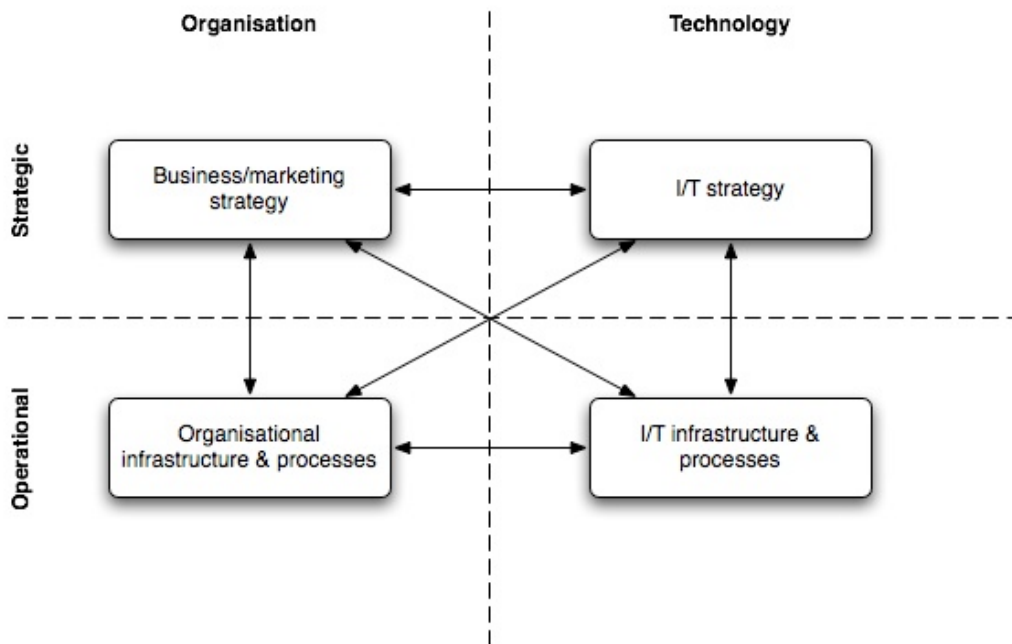


Figure 2 Alignment model used for this research

The model is divided into four quadrants; the horizontal quadrants represent the strategic elements (business and IT strategy) and operational elements (organisational and IT infrastructure and processes). Vertically the organisational elements (business strategy and organisational infrastructure and processes) and the technological side of the organisation (IT strategy and IT infrastructure & processes) are shown.

These four quadrants introduce the idea of approaching the organisation from different directions (organisation and technology) and at different levels (strategic and operational). Because of this, it is now possible to design an implementation methodology that covers all the essential areas of an organisation. It also gives some structure to the methodology so that possible/potential problem areas are tackled in a structured manner.

All four blocks have to be present in order for the alignment to succeed. An organisation cannot be run without a clear business strategy as it consists of (long-term) goals and planning. An organisation must have an infrastructure, which supports the processes responsible for the creation of the final product and/or service. If IT is present in the business (which usually is nowadays), then there should be an IT strategy present to support the changes that are planned for the future.

The bi-directional arrows between all of these blocks indicate that they are interdependent. This relation is mandatory for the whole organisation to operate correctly and efficiently. The links between the business strategy and the IT strategy support the long-term plans of the organisation in terms of IT and the IT strategy should be aligned with the business strategy to ensure that the long-term goals are achieved. If the organisation relies heavily on IT and there is no IT strategy, then long-term goals/objectives will not be achieved efficiently.

The same applies for the relation between the business (long-term) strategy and the organisational infrastructure and processes. The business strategy is based on these processes, as they are required to fulfil the (long-term) goals. These processes should also share a common goal (depending on the business strategy) to ensure that all processes achieve the day-to-day goals that help achieve the long-term goal(s).

An IT strategy of a company cannot be formed/planned if there is no infrastructure to support it. An IT infrastructure without a strategy can operate on its own but the objectives that have to be accomplished are unknown making it difficult for the company to profit from the infrastructure.

The organisational infrastructure and IT infrastructure continuously interact with each other, employees require IT to do their jobs, IT requires an organisational infrastructure and processes to ensure that it is clear what has to be made/produced.

The business strategy relies heavily on the IT infrastructure as it offers the framework for all the processes within the organisation that are responsible for the production. Without an IT infrastructure there is no way of creating the product/service and therefore it is impossible to achieve the (long-term) goals. An IT infrastructure cannot operate on its own without an organisational strategy. The organisational strategy dictates in many ways how the infrastructure should look like in order to cope with the demands.

The same can be said about the relation between the organisational infrastructure and the IT strategy. If it is unclear what the organisational processes are, and how IT can support these processes, then it's impossible to create an IT strategy. An IT strategy is also required in order to know what processes have to be present to achieve the IT strategy.

It is possible to place performance measures on each quadrant separately. These performance measures can be used to identify whether or not the organisation is evenly balanced. Spending more time on IT strategy for example can unbalance the whole organisation if little to no time is spent on the organisational strategy. It is therefore important that:

- a) All areas of the organisation are covered sufficiently to make the organisation operate correctly
- b) There is a good balance between all the four areas to ensure that each element can rely on each other for an efficient and successful workflow.

2.2 Practice

The modified model now indicates four areas and twelve relations that possibly reflect the problems within Wegener Dagbladen, namely:

- Business / marketing strategy: this includes long-term planning, generating revenue, and reaching the readers adequately in order to sell the product.
- Organisational infrastructure & processes: these can be internal and external processes that are required to create the final product (in this case the news, website and newspaper).
- IT strategy: this includes the long-term planning in terms of the IT infrastructure and processes.
- IT infrastructure & processes: this encapsulates all the technological requirements the organisation may require to create the final product.

This research will be structured according to these four areas. The information collected would be:

- Business/marketing strategy: identify whether or not some (market) research is being done before starting a new project. Research will have to be done to find out how goals are formed based on this information to determine whether or not these goals are formed realistically. Regarding the marketing strategy, it would be necessary to know whether the correct partners/advertisers are being found to finance the organisational processes.

- Organisational infrastructure and processes: find out what tasks are required to create the final product. Some research would have to be done to identify the capabilities of the employees and determine whether they have the correct tools and information to do their jobs (correctly).
- IT strategy: people responsible for the IT strategy have to be interviewed to find out whether or not there is an IT strategy in place. If there is one, research has to be done to identify whether or not the goals are realistic based on the IT infrastructure.
- IT infrastructure and processes: The people that need to use IT to do their jobs will have to be interviewed so that problem areas are identified and possible improvements are discussed.

The objective is to present an implementation methodology, which covers all these four aspects.

3 Literature research

To properly diagnose the issues at Wegener, some background information is required. The literature used in this thesis will be the foundation for the case study and will cover the four different areas. The information gathered can be used and applied into practice to create the implementation method in the end.

3.1 Method

There is a lot of literature regarding organisational changes, management and IT implementations. In order to find adequate literature for this research careful thought has to be made on how to retrieve relevant information effectively.

As the topic of this research is the cross-medial way of working, it would be interesting to also apply this way of working to this research. Therefore, some literature will be obtained by using the Internet (particularly search engines like University Library, EBSCO, Google Scholar, etc). This in most of the cases is both efficient and effective as the tools that are currently available ease the search process. On the other hand papers and books from the library will also be consulted for more in depth information.

It is useful to have these tools at hand, but it is also important to know what keywords should be used. Some general keywords like 'change management', 'IT infrastructure' and 'IT alignment' can be used. This kind of information can be very useful for background information. However, if more relevant information is to be collected, more concrete keywords will have to be used.

The alignment model is a good basis for coming up with concrete keywords. Some of these concrete keywords can be 'management of cross-medial teams', 'effects of IT infrastructure in an organisation', 'change of organisational processes and infrastructure', 'defining business strategies using IT', 'possibilities of IT in news(papers)', etc.

Searching these keywords may definitely result in many papers, documents, newspaper articles, comments, etc. The next step would be to filter the good literature from the bad. This can be done by looking at how many times the particular documents have been cited (the more the better), where the article has been published (well-known journals are better than the less-known), when the paper was written (the more recent the better) and whether it is relevant.

Preferably the papers found should discuss similar topics (IT and organisation) in similar settings (cross-medial and multi-disciplinary), so that the literature can give some additional value to this research. The focus will be on searching journals that discuss the four areas rather than looking for journals about (online) newspapers. This ensures that enough depth is given to the literature research.

Table 2 shows a list of the most important keywords that will be used for the search of literature research and also the top 10 journals that will be inquired to retrieve the necessary information.

Table 2 Top 10 keywords and journals

Top 10 keywords	Top 10 journals
Cross-medial project teams	Academy of Management Review
Multi-disciplinary project teams	Management Information Systems Quarterly
IT alignment model	Journal of Engineering and Technology Management
IT strategy	Organisation Science
Implementation methodology	Journal of Management
Framework	Academy of Management Journal
RUP	Journal of Management Studies
Organisational Infrastructure and processes	Annual Review of Psychology
Organisational strategy	Journal of Direct Marketing
(Online) newspapers	Sloan Management Review

These keywords have been chosen based on the alignment model introduced earlier. More keywords will certainly be used but this top 10 reflects the majority of the information that is going to be used for this research. The top 10 journals have different backgrounds: technology, psychology, management and marketing.

Table 3 shows a categorization of a selection of the references that will be used for this research according to their topic. The topics reflect the four areas shown in the alignment model, background information and theoretical information regarding the framework and the research methodology.

Table 3 Relation between topics and references

Topic	Reference(s)
IT strategy	Cegielski, Reithel & Rebman (2005), Charitou & Markides (2003), Kanter (2002), Prahalad & Krishnan (2002), Ross & Beath (2002), Ross & Weill (2002), Weill & Aral (2006), Weill, Subramani & Broadbent (2002)
IT infrastructure and organisation	Alchian & Demsetz (1972), Anand, Manz & Glick (1998), Andolsen (1999), Dewett & Jones (2001)
Organisational/marketing strategy	Charvat (2003), Draft & Lewin (1993), McCarthy (1960), Picard (2000)
Organisational infrastructure and processes	Adair (1988), Bateman & Organ (1983), Jackson (1996)
Action research	Baskerville (1997), Baskerville (1999), Baskerville (1996), Blum (1955), Hult & Lennung (1980)
Research validation	Klein & Myers (1999), Yin (1994), Yin (2004)
Frameworks / Implementation methodologies	CCTA (1989), Kuncher (2000)
(Online) newspapers	Boczkowski (2004)

3.2 Business/marketing strategy

The newspaper industry has extended the traditional print medium by using the Internet. Marketing on the Internet presents an interesting challenge for the news publishers. The opportunity to customize, search and compare in a global marketplace extends the regional focus of most newspapers, demanding additional considerations of content, advertising and delivery formats (Boczkowski, 2004).

Some news publishers have made the choice to make the online newspaper look similar to their traditional newspaper (for example nytimes.com), others have taken this a step further by offering interactive multimedia content customized to the individual reader in a manner radically different from that of traditional newspapers (for example nu.nl).

The newspaper has been a source of information and entertainment for centuries and is driven by three key elements: advertising, content and delivery. The content basically consists of the written product including articles, comments, and other information. The delivery of a newspaper is traditionally being done by the use of trucks and carriers (Boczkowski, 2004).

The online newspaper on the other hand includes the same elements of content, advertising and delivery, but rather than using paper and mechanical distribution as its medium, it uses the Internet. It is even possible to distribute the content using eBooks and similar mobile devices. Because of the Internet it is possible to present content using text, graphics, photos, audio and video. Usually the digital newspaper is published on a website and provides some or all of the paper version's content and in some cases expands the coverage with extended editorial content (Boczkowski, 2004).

With respect to advertising, news publishers tend to use two types of methods: retail and classified (Shaw, 1997). Retail advertising consists of publishing a banner advertisement with a link to the advertiser's website. Classified ads are usually submitted by readers and contain short messages like a vacancy and exchange of goods (Shaw, 1997).

To be able to analyze the traditional newspaper and the online newspaper in terms of its marketing potential it is necessary to use a well-known model in the marketing world, namely the four P's (McCarthy, 1960). The marketing theory of product, price, promotion and place provides an outline of related issues.

Product includes both the display and description of the product, its quality, information about the product, its characteristics and how it is used. Price is consists of product cost, tax, shipping and handling. Pricing is often a key marketing decision, attempting to meet market demands while maintaining reasonable profit. Promotion includes the activities of advertising and merchandising the products. Place refers to the availability of the product, and the ability to deliver the product via distribution channels (McCarthy, 1960).

Palmer & Eriksen (1999) have attempted to analyze both types of newspapers, based on this model. Their (summarized) findings are shown in Table 4.

Table 4 Newspapers and marketing activities (Palmer & Eriksen, 1999)

Marketing element	Traditional Newspaper	Digital Newspaper
<i>Product</i>	News service, heavily text-driven information through classified advertising	News service, classified and retail advertising multimedia content, archive service, customized product, market maker
<i>Price</i>	Subscription, advertising	Subscription, advertising, pay-per-use
<i>Promotion</i>	Promotional discounts, in-paper self-advertising, other media	Web promotional advertising, within paper version self-advertising, other media
<i>Place</i>	Physical distribution channels	Enhanced distribution chain

Pricing

The main way of pricing the online newspaper is by offering subscriptions to all or part of the content available through the website (Palmer & Eriksen, 1999). This could be for a given time (subscription) or on a per view basis (usage fee). It appeared from research that especially those papers with a specialized content (topic or geographic area) tend to charge a subscription or usage fee (Picard, 2000).

Product

Within this marketing element, there are three different types of products, namely archiving, multimedia and customized products. The customized content consists of providing specific kinds of content based on the reader's needs (either on a general basis or even on an individual scale). These can include customized / advanced search possibilities, advertisements or even delivery mechanisms such as e-mail notifications (Palmer & Eriksen, 1999). Some newspapers included in the research done by Palmer & Eriksen (1999) have generated additional revenue through the development of customized products, ranging from research services and archiving to specialty items such as comics.

Archives can be an extra service that can be used by the readers. In some cases it may even be possible to charge for the usage of the archive. This depends on the size of the research departments, and their commitment to maintaining paper-based archives. Payment schemes can include a charge per article, time session or periodic (Picard, 2000).

Multimedia implementations can typically involve the use of audio and video clips. It may even be possible to support this multimedia by sponsoring organisations involved in the broadcast media, providing a ready source of supply and expertise. The combination of audio with video has the potential to generate substantially different products from the text and photographs of the paper version and to stimulate increased reader interest (Picard, 2000).

An emerging marketing role for digital newspapers is that of market intermediary. An example is Den Blå Avis (www.dba.dk) bringing buyers and sellers together. Such a newspaper becomes a market-maker providing support for transactions by serving as an intermediary of information for all parties.

Promotion / Advertising

Online two types of products can be advertised: tangible products and other online services. By clicking on the advertisement the user either visits a website containing information about the tangible product or is direct to the website of the advertiser. Another distinction can be made, namely cross-advertising (advertising other products or services of the newspaper's publisher) and paid advertisements (banner and classified) from other companies. The first method would probably be used to promote or create exposure for complementary goods/services; the second one would be a direct source of income for the news publisher (Mehta & Sivadas, 1995).

Several payment mechanisms can be used. The most used mechanism would be the traditional payment scheme for placing ads in a printed newspaper. Advertisers would have to pay a fixed amount to have their banner placed on the website for an agreed amount of time. Online it is also possible to offer a variety of payment schemes such as a fixed price per impression, or a certain price for an agreed number of impressions (when this amount is reached the banner is automatically removed from the website) (Mehta & Sivadas, 1995).

Place / Distribution

Online distribution is immediate, breaking the traditional delivery barriers of time and space. Because of this in most cases it would suffice to just publish the newspaper articles on a website where everyone with Internet access can visit the page without paying. The website may have additional services where the reader may have to pay for to gain access. It is also possible to send a customized version of the paper, or articles based on a user's profile via e-mail or using an information service such as PointCast (pointcast.com).

Applied to Tubantia

Marketing/business has many dimensions. Thanks to the categorization given by the four P's it is possible to tackle each area separately. The goal is to have a plan that incorporates all these four areas, which can later be used to measure whether or not the project team was capable to successfully introduce a new product into the market (McCarthy, 1960).

TC Tubantia has already incorporated the idea of working with different media in their marketing and business strategy. Because of this they have started with both pilot teams that consist of people with different disciplines who each work on the printed version and the website.

Furthermore, not a lot of revenue generation is being done. The organisation's primary focus is to exploit their current advertisers in order to generate more revenue. There have been initiatives to increase their customer base and therefore hopefully increase their revenue, however, concrete long-term plans have yet to be made.

Regarding the four P's of the marketing mix, some more attention has to be made to Product and Promotion. The product combination of website and print still has to be worked on. Vague goals have been set of what the website should achieve, but 'how' and 'when' is unclear. No milestones have been set and no metrics have been agreed on to be able to determine whether or not the product has achieved its targets. The promotion aspect is also vague, it is unknown how the website and print should be promoted to increase the number of readers and website visitors. A summary of the findings is shown in Table 5.

Table 5 Business strategy - current state and recommendations

Area	Current state of Tubantia	Recommendations for Tubantia
Product	Printed product is good, but has few pages making it difficult to attract advertisers. Website is acceptable but needs improvement when it comes to publishing newflashes.	Change the printed product so that it has several pages, making it very attractive for customers to advertise. The website should incorporate more interaction with the visitor. It should have a good technological foundation that enables journalists to publish content easily and quickly. Both website and printed product should be seen as complementary goods so references have to be made to each other to emphasize this.
Price	The price mechanism of the printed product is common in the newspaper industry so it doesn't have to be changed. There is currently no pricing mechanism on the website.	Improve the website to offer something extra that can only be used by paying. Motivate visitors to purchase these services. This would create a new revenue stream.
Promotion	Promotion of the printed product is present. More can be done to promote the website. Currently the only promotion being done is a link on the newspaper's websites and a banner on the printed product.	Promote the website by improving the content and structure of the website so that people searching through the internet on topics such as sport and recreation end up on the website.
Place	The printed product is currently being distributed via postal mail, which is the only possible distribution method. The website is part of the newspaper's main website.	Maybe deliver the content published on the website in different manners, such as via mobile devices, eReaders, e-mail, etc.

3.3 Organisational infrastructure and processes

Organisations pursue new business strategies to compete in the global marketplace. They often conclude that multi-disciplinary teams are needed to develop innovative products and services to respond to customer's interests in a wide range of products and services. Multi-disciplinary teams are a foundation for bringing together employees with different technical backgrounds that are required to complete the tasks. The increasing popularity of team-based organisational topologies reflects the widely shared belief that teamwork offers the possibility to achieve outcomes that would never have been achieved by individuals working in isolation (Jackson, 1996).

When forming multi-disciplinary teams, many organisations do experience that teams do not always produce the desired results. Even when teams fulfil their potential, team members and their organisations may experience unanticipated negative side effects, such as unproductive conflict and high turnover. There are a number of challenges team members must overcome to achieve their common goal (Jackson, 1996):

- Efficient decision-making and problem solving: team members have different backgrounds, different ways of solving a problem, different ways of taking decisions. These ways can affect each team member in a negative way.

- Leadership: some members of the team should have the qualities to lead the group to achieve the goals.
- Implementing decisions: generating ideas is not the only task members have, these ideas need to be implemented in the near future for the team to be a success.
- Feeling of cohesiveness: this may be a struggle for team members and can therefore lead to a negative atmosphere within the group.

These challenges are explained in further detail:

Efficient decision-making and problem solving

Decision-making processes are important if teams are to function properly. It is often because diverse perspectives are presumed to improve decision-making processes that organisations employ multidisciplinary team structures.

A typical decision-making process would look as follows (Jackson, 1996):

1. An environmental scanning would occur in the earliest phase of decision-making.
2. Based on this environmental scanning, it should be possible for the team members to provide a more comprehensive view of the possible issues that might be placed on the team's agenda (including threats and opportunities).
3. Once potential threats and opportunities have been identified, discussion amongst members with diverse perspectives should improve the team's ability to consider a variety of alternative interpretations of the information gathered by the team
4. Based on the information gathered, creative solutions can be generated that can be integrated into the diverse perspectives.
5. As the team discusses alternative courses of action and solutions, diverse perspectives presumably will increase the team's ability to foresee all possible costs, benefits and side effects. All team members should have a fairly equal say.

Some examples of the decision-making process can be read in Porac & Howard (1990).

The problem with team members having different disciplinary backgrounds can be that each member has no interest in what other people within the team are working on. It is therefore important that the project leader stimulates conversation between the team members in order to come up with a good decision-making process (Jackson, 1996).

Leadership

According to Adair (1988), there are three areas of need present in working groups with regard to proper leadership, namely:

1. The need to achieve the common task
2. The need to be held together as cohesive unities
3. The needs that individuals bring into the group

Adair's view reflects the US and European standpoints that a high value is placed on the freedom of the individual. Thus leaders should be aware of both the **group's** and each **individual's** need, and should harmonise them in the service of the common **task**. This led to Adair formulating the "three-circles model" (Figure 3). Each of the three needs interact with each other. One must always be seen in relation to the other two. It is the role of the leader to perform the functions of leadership: to be aware of what is happening with the group(s), to understand what function is required and when, and to possess the skills to

function effectively. This will achieve the common task by working as a team, while respecting and developing individual members.



Figure 3 Three circles model (Adair, 1988)

Implementing decisions

Having too much diversity within a team that is not relevant to the task at hand may interfere with the implementation of the ideas. This is because all members of the team may be less strongly committed to whatever solution is eventually agreed upon. If diversity of perspectives makes reaching consensus difficult, teams may choose to resolve conflicts through compromise and majority rule instead of persisting to a creative resolution that is acceptable to everyone. Dependence on compromises or majority rule may decrease team members' acceptance of and enthusiasm for the team's resolution (Jackson, 1996).

Diversity may slow down the process of decision-making and implementation, but it can also increase the team's alertness in attending to feedback about the quality of their decisions. The trade-off between speed and vigilance suggests that diversity may be a very positive feature for teams engaged in high-risk decisions (Jackson, 1996).

Cohesiveness

In order to solve complex decision-making problems, the expression and discussion of conflicting opinions and perspectives ensures through discussion of a wide range of interpretations, possible solutions and alternative consequences that might follow the acceptance of a solution (Schweigner, Sandberg & Rechner, 1989). Exposure to alternative views may improve the quality of thinking about the issue at hand. It may also stimulate learning, which should benefit the team as it works on new tasks in the future (Nemeth, 1986). Unfortunately, however, opposition and disagreement often stimulate negative emotional reactions (Nemeth & Staw, 1989), which may be directed toward other individuals in the team.

Applied to Tubantia

From the above it follows that management is not finished with setting up a new project team by just forming a team with people with different disciplines. A lot more has to be done before, during and after the formation of a team. Lots of critical success factors come into play that can affect the result. Many of these critical success factors are psychologically related: a good chemistry between the team members must exist and decisions should be made and implemented. Cultural, personality and leadership differences between team members can affect the decisions that are made and should therefore be monitored.

Good coordination from higher levels in the organisation should allow for proper decision-making, efficient use of time and ensure that every person within the group has an equal say regarding the product/service being created and also solve problems (if any) regarding cultural differences.

The organisational structure of TC Tubantia is traditional with many levels in the hierarchy and wide spans of control. The head of editorial staff is responsible for nearly 125 journalists spread over different offices in the Twente region (including the designers, internet journalists, and photographers), making it difficult to stay up to date. This wide structure makes it very difficult to quickly react to changes in the market.

Within TC Tubantia setting up a project group to produce a website and newspaper is a revolution. Nothing similar has occurred ever before. Because of this the organisation of the pilot team is not as good as it should and could be.

Even though these project teams have been made, the responsibilities of each team member are still unclear. Interaction between the members is present. However specific tasks are never assigned explicitly to each team member resulting in tasks never being completed. The team members are good in generating ideas, however when it comes to dividing the tasks (if this is ever done), then there's little motivation among the team members to elaborate on these ideas. The findings regarding this topic are summarized in Table 6.

Table 6 Org. infrastructure & processes – current state & recommendations

Challenge	Current state of Tubantia	Recommendations for Tubantia
Decision-making and problem-solving	On a higher level in the organisation decisions are being taken and problem-solving tasks are being delegated to employees on the work floor. Decisions and problems being discussed within the group are however usually not followed through.	Assign problem-solving tasks explicitly to the responsible members within the team. A superior should also monitor the progress on these tasks and ensure that these tasks are being completed.
Leadership	The head of editorial staff is in charge of the team and leads the weekly meetings.	Give somebody (new) the task to monitor the progress of the team and ensure team members complete their tasks.
Implementing decisions	Team members usually don't have the authority to make the decisions that are required to improve the daily processes.	Give the team members more authority to make necessary decisions or ensure that the communication channels between the team members and the people who do have the authority to make the decisions are short and fast.
Cohesiveness	Both pilot teams arrange weekly meetings to ensure that everyone is up to date. Everyone understands each other and there is sufficient communication between the members either via e-mail, verbally or telephone.	Codify the information being exchanged often for future reference. This information can consist of conversations that take place between team members or decisions that have been made and the reasons for making them.

3.4 IT strategy

Since IT strategy is a very broad concept, a lot of research can be found on this subject. According to Thiadens (2005), 'IT management is the controlling of IT facilities within an organisation. This control takes place at operational, tactical

and strategic level and by all parties involved. These parties are in general a combination of the management of an organisation, the management of the business functions and IT management. The purpose of this control is to achieve an application of IT facilities complying with the demanded functional and performance requirements'.

An IT strategy consists of managing all IT resources for the short-, medium- and long-term period. All employees that are/may be involved with this IT infrastructure should therefore be involved in the making of IT strategies. There are five critical success factors for the development of an IT strategy. These five factors have to be in place for strategic development to be effective.

1. Revisit the business model

A business model explains how the different pieces of a business fit together. It ensures that everyone in an organisation is focused on the kind of value a company wants to create. Only when the business model is clear, strategies can be developed to articulate how a company will deliver that value in a unique way that others cannot easily imitate (Ross & Beath, 2002). Thus, it is essential that all managers, including IT and business managers, completely understand how their business as a whole works.

2. Adopt strategic themes

IT strategy used to be about individual projects. Now it is about carefully crafted programs that focus on developing specific business capabilities. Each program consists of many smaller, inter-related business and IT initiatives that cut across several functional areas. These programs are designed so that they can be adapted, reconfigured, accelerated or cancelled as the strategic program evolves. Themes give both business and IT managers a broad yet focused topic of interest that challenges them to move beyond current operations (Kanter, 2002).

3. Get the right people involved

One of the most important distinguishing factors between companies that get high IT business value and those that do not is that senior managers in high performing companies take a leadership role in IT decision-making. Abdication of this responsibility is a recipe for disaster (Ross & Weill, 2002).

Getting the right people involved also means getting business managers and other key stakeholders involved in IT strategy as well. To do this, several focus group organisations have established "account manager" positions in IT to work and learn about the business and suggest opportunities for using IT. Research shows that the best strategies often stem from grass-roots innovations and it is therefore critical that organisations take steps to ensure that good ideas are nurtured and not filtered out by different layers of management (Kanter, 2002).

4. Work in partnership with the business

Successful strategy demands a true partnership between IT and business. Strategy decisions are best made with input from both business and IT executives (Ross & Weill, 2002). Partnership is not just a matter of "involving" business leaders in IT strategy or vice versa or "aligning" business and IT strategy. Today effective strategizing is about "continuous and dynamic synchronization of capabilities" (Prahalad & Krishnan, 2002).

5. Balancing IT investment opportunities

One of the many challenges of developing an effective IT strategy is the fact that technology can be used in so many different ways. The opportunities are practically limitless. Unfortunately, the available resources are not. Thus, a key element of IT strategy is determining how best to allocate the IT budget. This

issue is complicated by the fact that most businesses today require significant IT services just to operate (Weill & Aral, 2006).

IT strategy must consider two important components (Weill & Aral, 2006):

- 1) How to do more with less (driving down fixed costs)
- 2) How to allocate the remaining budget towards those IT investment opportunities that will support the organisation's business strategy.

There are five investment opportunities: business improvement, business enabling, business opportunities, opportunity leverage and infrastructure (Appendix B). Determining the balance between the opportunities is a significant component of how IT strategy delivers business value. In a way, organisations have to adopt a portfolio approach to IT investments. Too much or too little focus on one type of investment can mean a failure to derive maximum value from a particular strategic business theme (Weill & Aral, 2006).

Applied to Tubantia

The IT strategy focuses on the future of the organisation in terms of its IT infrastructure, opportunities and way of thinking. Technology can play an important role in determining the course of the organisation and in most cases also helps the organisation to operate efficiently and effectively.

Every organisation has to think about the five Critical Success Factors or CSFs (the business model, adopting strategic themes, involving the right people working in partnership with the business and balancing the IT investment opportunities). All of these CSFs are interrelated and it is therefore essential that all of these factors are balanced out between them and enough attention is being paid to all of them.

An IT strategy within Tubantia is basically non-existent. The main problem is that there is a lack of knowledge regarding technology, which in practice results in a lack of IT strategies and goals. The company has outsourced their IT activities to external parties, but contracts with these parties are so meagre that it gives Wegener little room to innovate and being able to use the latest technologies.

The goals that have been set regarding IT have been set for departments where the IT knowledge is basically non-existent, making it difficult for them to achieve these goals. For example, a goal has been set that the website of the culture project should attract more than a certain amount of unique visitors per month. The journalists are responsible for achieving this goal even though they don't have the knowledge of how to accomplish this. Table 7 summarizes all these points.

Table 7 IT strategy - current state and recommendations

Area	Current state of Tubantia	Recommendations for Tubantia
The business model	The business model does include IT elements, however these are vague, not measurable and not enough attention is being paid to the opportunities IT has to offer.	Spend more time in finding out what the current IT problems are. Spend more time determining if the IT infrastructure is good enough for the business model and decide where to invest on.
Adopt strategic themes	The current applications being used by the employees are generally outdated making it difficult to profit from new technologies.	Do some research in determining what areas need investment/upgrades. Try to implement new technologies wherever possible.
Involving the right people	Currently not a lot of people within the organisation have sufficient IT knowledge to help improve the IT strategy. Because of this, IT is usually placed on second place.	Motivate people to investigate new technologies and employ new people with IT knowledge.
Work in partnership with the business	IT has a lower priority in comparison the organisational strategies. Because of this representatives of the IT departments are rarely involved with the decision-making process.	Bring IT to a higher level by finding out how IT can help achieve strategic goals and other operational processes.
Balancing IT investment opportunities	Little to no investment is being done on IT, resulting in an IT infrastructure, which is outdated. Long-term IT plans are being cancelled.	Spend more time in identifying how the IT of the organisation can be improved, which investments are worth its money.

3.5 Information Technology infrastructure and processes

IT infrastructure inter-links business processes, with the organisation and the firm's customers and suppliers. The IT infrastructure spans and supports all these business processes and provides an enabling base of information systems. A typical IT infrastructure consists of hardware such as servers and workstations and communication channels such as the network and data centres (Keen, 1991).

Dewett and Jones (2001) conducted a research in which the benefits of IT are described based on its influence regarding strategic outcomes, namely efficiency and innovation. Secondly, they have applied this approach to identify how an organisation functions because of the impact of IT. Both authors therefore have come up with the model shown in Figure 4.

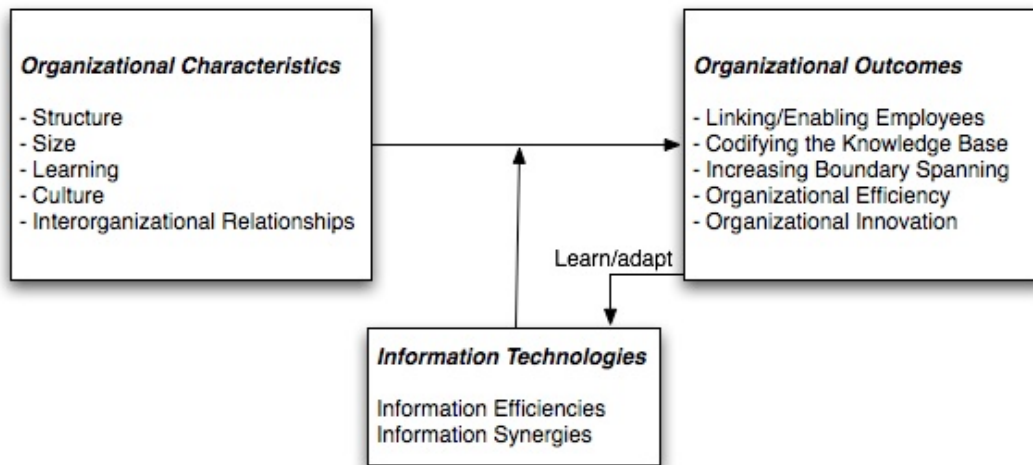


Figure 4 The role of IT in the organisation (Dewett & Jones, 2001)

The organisational characteristics and organisational outcomes mentioned in the figure are naturally a selection of all the possible characteristics and outcomes present in an organisation. The goal of the model is to show that by applying IT on certain characteristics of the organisation, certain outcomes can be achieved that can have an overall positive effect on the efficiency and innovation of the company. These improvements are named information efficiencies and information synergies in this model.

Information efficiencies (INE) are the cost and time-savings achieved when IT allows employees to perform their current tasks at an improved level, assume additional tasks, and have a greater influence on the organisation due to the increased ability to gather and analyze data. For example, after applying IT in an organisation, individuals / teams may share or reorganize their tasks as technologies increases their ability to process information.

Information synergies (INS) are the performance gains that result when IT allows two or more individuals or teams to share their resources and cooperate on a higher (non-individual) level. This can be achieved for example when IT allows different individuals or teams to adapt their actions or behaviours on an ongoing basis depending on the needs of other individuals and/or teams. Basically, information synergies arise when IT helps to promote the multiplicative and non-separable gains that can be obtained from team-based cooperation (Alchian & Demsetz, 1972).

IT links and enables employees

Compared to face-to-face contact, the use of electronic communication has been shown in the literature to increase the overall amount of communication in the organisation. This conclusion implies that the use of IT in organisations contributes to a fundamental benefit when linking and enabling employees, within and between functions and departments, Therefore INE and INS are also achieved. However, relying largely on IT for communication purposes can lead to increased alienation among employees (DeSanctis & Monge, 1999).

The disadvantage of linking employees is that the amount of good advice received will increase, but bad advice may increase as well. It is not possible to assess the source's expertise, motives and so on (Constant, Sproull & Kiesler, 1996). Sarbaugh-Thompson and Feldman (1998) suggest that two possible negative effects of the use of electronic communication are the reduction in casual conversation and that it may lead to less opportunities to signal "communication trustworthiness" in social situations.

IT codifies the knowledge base

Information that is not being codified and only kept in the minds of the employees is subject to erosion and error (Huber, 1990). Organisations therefore have trouble maintaining this information as it basically consists of a collective of individuals. Advances in IT have greatly facilitated organisational memory and the ability to capture and integrate explicit knowledge by codifying, assimilating, communicating, storing and retrieving information (Anand, Manz & Glick, 1998).

It may be possible that too much information is codified and stored resulting in an information overload. This may impede managers to make timely decisions if the information is not properly filtered and/or there are no means to easily/quickly search through the information (Desanctis & Monge, 1999).

IT increases boundary spanning

Codifying information using IT then enables organisations to easily exchange and share information within its departments but also to the outside world. Information can be exchanged between (on a lower level) employees and departments and (on a higher level) organisations. This can facilitate the decision making process by making sure the decision-makers have enough information at their disposal. This can however again lead to information overload. Research (Eisenhardt, 1989) however, shows that fast decision makers actually use more information compared to slower decision makers.

IT promotes efficiency

Summarizing all three characteristics mentioned in the previous sections, it could be concluded that IT improves efficiency within an organisation. IT makes it possible to:

- Communicate more easily and less expensively across time and geographic locations,
- Communicate more rapidly with greater precision to targeted groups,
- Record and index more reliably and inexpensively the context and nature of communication events,
- More selectively control access and participation in a communication event or network,
- Make decisions based on a lot of information,
- Ensure that information can be rapidly and accurately combined and reconfigured,
- More reliably and inexpensively record and retrieve information about the context and nature of organisational transactions.

IT promotes innovation

According to Myers and Marquis (1996), innovation can be defined as “a complex activity, which proceeds from the conceptualization of a new idea to a solution of the problem and then to the actual utilization of economic or social value”. Dewett & Jones (2001) among other definitions uses the definition of innovation as being “a process bringing any new problem-solving ideas into use”. Because IT determines the way information is stored, transmitted, communicated, processed and acted upon, it falls under this last definition.

Take project based work as an example: some project members will be part of a team from beginning till end, others will only be member of the team when their expertise is required and will leave the group once their job is completed. The exchange of information, rotation of tasks, and recording of decisions can be done by using IT (Myers & Marquis, 1996).

IT provides management with real-time capability to monitor project progress and tools to allocate knowledge resources accordingly to optimize the overall value added of each team member, and, in turn, optimizing knowledge use and the potential for INS. This movement has resulted in employees working in a more parallel manner, working on different tasks at the same time, instead of sequentially or in batches. This development can promote innovation (Myers & Marquis, 1996).

Daft & Lewin (1993), among others, have shown that new IT-enabled forms are viewed as more innovatively responsive to varied environmental pressures, such as heightened market volatility, the globalization of business, increased uncertainty, and demographic changes in labour and consumer sectors in comparison with more rigid bureaucratic organisational forms.

Applied to Tubantia

IT has shown to be a very useful tool when creating, saving and organizing information. It is technology that can certainly improve the efficiency, effectiveness and innovation of processes. IT can help keep knowledge within the company, improves and/or facilitates communication between employees ensuring that they are up to date. Little knowledge is lost if one (important) employee were to leave the company if all available knowledge were codified. In summary: IT is a must for any organisation operating in a continuously changing environment.

When asking Tubantia's journalists about the IT within the organisation, unanimously they all say that the infrastructure is out of date, knowledge regarding IT is present but only in a few people, hardware being unreliable for the job, etc. Many complaints have been collected regarding the out-dated infrastructure and the outdated hardware and software. Even though the IT may be out-dated, people can still do their jobs. Maybe not in an efficient and effective way, but they can do their jobs. It maybe the case that employees blame IT to less productivity as an excuse to do less, which in some cases may be true, but one thing is a fact that IT does create a lot of frustration among employees.

Many innovative projects have been postponed or even cancelled, because management was unconvinced that the current IT infrastructure was able to support these new ideas. This is a very bad sign, and does affect the innovativeness of the organisation. These new projects can lead to a more dynamic and efficient organisation and new revenue streams.

Investing in a better IT infrastructure and improving the IT processes is a costly thing. However if executed correctly, IT can reduce costs, improve effectiveness and efficiency, increase motivation among employees and therefore improve the

final product. This improved final product can result in an increase in revenues and in a wider range of products and services, which on their part creates new revenue streams.

Before investing, research should be done to identify what the benefits would be with the new infrastructure, what the estimated increases would be in revenue, the organisational improvements, the return on investment, etc. Based on this information, management can safely make the decision whether or not improving the infrastructure is a wise decision.

Table 8 summarizes all the points and adds some recommendations regarding this topic.

Table 8 IT infrastructure and processes - current state and recommendations

Area	Current state of Tubantia	Recommendations for Tubantia
Link & enable employees	Employees currently communicate using the telephone and face-to-face. Some communication is done via e-mail.	Ensure that the current IT infrastructure helps employees to communicate with each other in an efficient manner. Think of conference calls, 3D modelling and online presentations.
Codify knowledge base	No knowledge base is currently present.	Implement a WIKI or anything similar, which can be used to codify the knowledge employees may have. This knowledge base has to be accessible by everyone in the organisation.
Increase boundary spanning	Currently there are some communication barriers between the different departments. IT is not being used to breakdown these barriers.	Use IT to stimulate communication between these departments and keep every department up to date via e-mail, website or newsflashes.
Promote efficiency	Not everyone is always up to date with what is happening within and outside the group. Because of this tasks are not being completed on time or appropriately.	Make use of software such as planning tools and communication tools to monitor the progress of the project, to ensure goals/objectives and deadlines are met.
Promote innovation	Little to no innovation is taken place. There is no focus on long-term activities.	Improve the infrastructure to exploit new technological opportunities such as electronic readers, automatic mailings, customizable websites, etc.

4 Action Research Method

This section will describe how the practical research will be done. A method has to be chosen which ensures that enough information is retrieved from the practical environment. This can be done using action research, which turns out to be a very useful way of researching practical case studies.

4.1 What is action research?

Action research is an established research method in use in the social and medical sciences since the mid-twentieth century, and has increased in importance for information systems toward the end of the 1990s (Baskerville, 1999). The method produces highly relevant research results because it is grounded in practical action, aimed at solving an immediate problem situation based on theory where possible.

Action research is typically done in a social setting, analyzing for example the link between an organisation and its information technology. It is difficult to develop an understanding of the interaction of complex social organisations and their information systems. Because of this, the best way to analyze such social processes is to introduce changes into these processes and observe the effects of these changes.

The interpretive viewpoint allows social intervention into the research setting. When the researcher intervenes, the researcher becomes part of the study, i.e. one of the study subjects. Because of this the researcher perceives the 'meaning' of the observation. As the researcher attempts to understand what is observed, this personal understanding will invade the recording of the observation and the deductions that follow.

The idiographic viewpoint follows from the acceptance that each social setting involves a unique set of interacting human subjects. Any meaningful investigation must consider the frame of reference and underlying social values of the subjects. Action research consists of an idiographic method of enquiry partly by incorporating the subjects into their research as powerful collaborators.

Having covered these two viewpoints, it is also necessary to collect qualitative data for the empirical studies.

Action research consists of three stage processes, namely:

1. The *diagnostic stage*, which involves a collaborative analysis of the social situation by the research and the subjects of the research. Based on this, theories are formulated concerning the nature of the research domain.
2. The *therapeutic stage*, which involves collaborative change experiments. In this stage changes are introduced and the effects are studied (Blum, 1955).
3. The *reviewing stage*, which involves reflecting on the information that has been gathered and the influences the changes have had on the situation.

Based on Hult and Lennung's (1980) definition of action research, four major characteristics are present:

1. Action research aims at an increased understanding of the social situation within the IS domain.
2. Action research helps with the practical problem solving and expands scientific knowledge.
3. Action research is performed collaboratively and enhances the competencies of the respective actors.

4. Action research is primarily applicable for the understanding of change processes in social systems.

Because action research deals with different social factors that can influence the learning process of the research. To keep this influence to a minimum it is important to impose a clear, mutually agreed theoretical framework on the situation. This way it would be possible to conclude with general lessons.

The ideal domain of the action research method is characterized by a social setting where (Baskerville and Wood-Harper, 1996):

1. The researcher is *actively involved*, with expected benefit for both *researcher* and *organisation*.
2. The *knowledge obtained* can be *immediately applied*, there is not the sense of the detached observer, but that of an active participant wishing to utilize any new knowledge based on an explicit, clear conceptual framework.
3. The research is a (typically cyclical) process *linking theory and practice*.

The approach

The most common action research approach (Baskerville, 1997) consists of five phases, which are followed cyclically. The approach first requires an established client-system infrastructure of research environment. Then, the following five phases are iterated:

1. Diagnosing
2. Action planning
3. Action taking
4. Evaluating
5. Specifying learning

Figure 5 illustrates this action research structural cycle (Baskerville, 1997).

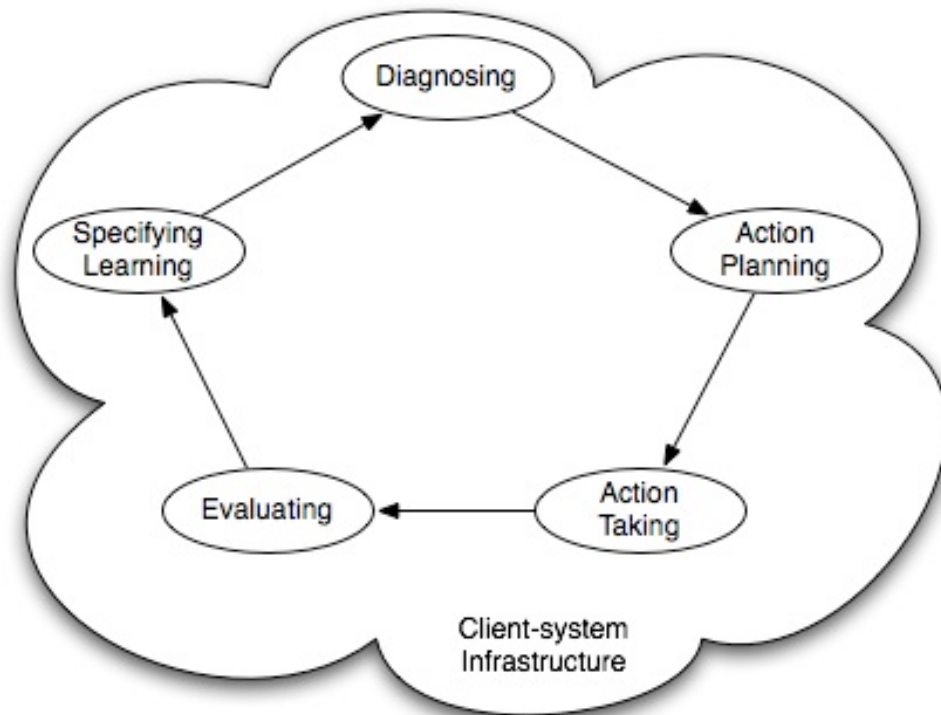


Figure 5 Action research cycle (Baskerville, 1997)

Client-system infrastructure: consists of the specification and agreement that forms the research environment. Considerations found within the agreement may include the boundaries of the research domain, and the entry and exit of the scientists. The infrastructure should also define the responsibilities of the client and the researchers to one another.

Diagnosing: corresponds to the identification of the primary problems present within the organisation and is the reason for the desire for change. It involves self-interpretation of the (complex) organisational problem; this diagnosis will develop certain theoretical assumptions (for example hypotheses) about the nature of the organisation and its problem domain.

Action planning: where both practitioners and researchers collaborate. This phase specifies organisational actions that should relieve or improve the primary problems. The finding of the planned actions is guided by the theoretical framework, which indicates the desired future state for the organisation and the changes that will ensure these changes. The plan establishes the target for change and the approach to change.

Action taking: after completing the action planning, it is now time to implement the plan. The researchers and practitioners collaborate in the active intervention into the client organisation, causing certain changes. Several forms of intervention strategy can be adopted in this phase (for example, directive, non-directive, etc).

Evaluating: after executing the actions, it is time to evaluate the changes within the organisation. Evaluation includes determining whether the theoretical effects of the action were realized, and whether these effects relieved the problems. Where the change was successful, the evaluation must critically question whether the action undertaken, among the myriad routine and non-routine organisational actions, was the sole cause of success. Where the change was unsuccessful, some framework for the next iteration of the action research cycle (including adjusting the hypotheses) should be established (Baskerville, 1997).

Specifying learning: usually the activity of specifying learning is done as last phase, however, in reality it is an ongoing process. The knowledge gained in the action research can be directed to three audiences:

- First, what Argyris and Schön (1978) call "double-loop learning", the restructuring of organisational norms to reflect the new knowledge gained by the organisation during the research.
- Second, where the change was unsuccessful, the additional knowledge may provide foundations for diagnosing in preparation for further action research interventions.
- Finally, the success or failure of the theoretical framework provides important knowledge to the scientific community for dealing with future research settings.

This action research cycle can continue iteratively, whether the action proved successful or not, to develop further knowledge about the organisation and the validity of relevant theoretical frameworks. As a result of the studies, the organisation thus learns more about its nature and environment.

4.2 Research design

The first part of the practical investigation will consist of monitoring the first pilot team (sport) during a period of one to two months. After this, the second pilot team (culture) will be monitored for three to four months to obtain enough practical information to form the implementation methodology.

Using the information collected from the first pilot team, the first version of the implementation methodology will be designed and discussed. After finishing monitoring the second pilot team, the second version of the implementation methodology will be designed. The differences between the first and second version will be discussed. After this the templates created for the implementation methodology will be discussed with members of the teams to determine their usefulness.

As conclusion, a reflection will be done regarding all the phases in the research, possible limitations of this research will be summarized and future research will be discussed. Some usage recommendations for the implementation model and general recommendations will be given to ensure that Wegener is able to use the implementation model in the future.

Data collection

For the interpretive field research, data has to be collected from people and where possible from documents. There are several sources of evidence that can be used for interpretive field research (Table 9).

Table 9 Six Sources of Evidence: Strengths and Weaknesses (Yin, 1994)

Source of Evidence	Strengths	Weaknesses	Will be used?
Documentation	<ul style="list-style-type: none"> Stable – can be reviewed repeatedly. Unobtrusive – not created as a result of the case study. Exact – contains exact names, references, and details of an event. Broad coverage – long span of time, many events, and many settings. 	<ul style="list-style-type: none"> Retrievability – can be low. Biased selectivity, if collection is incomplete. Reporting bias – reflects (unknown) bias of author. Access – may be deliberately blocked. 	Yes, to retrieve background information regarding the organisation and the plan. Only documentation from verifiable sources will be used and authors are questioned if irregularities are found.
Interviews	<ul style="list-style-type: none"> Targeted – focuses directly on case study topic. Insightful – provides perceived causal inferences. 	<ul style="list-style-type: none"> Bias due to poorly constructed questions. Response bias. Inaccuracies due to poor recall. Reflexivity – Interviewee gives what interviewer wants to hear. 	Yes, done extensively. Quality of information is improved by using (data, method and information) triangulation. As many open questions as possible are asked to prevent subjective answers.
Direct observations	<ul style="list-style-type: none"> Reality – covers events in real time. Contextual – covers context of event. 	<ul style="list-style-type: none"> Time consuming. Selectivity – unless broad coverage. Reflexivity – event may proceed differently because it is being observed. 	Yes, done extensively to monitor the progress over time. The group will be observed over a long period of time at regular intervals to exclude irregularities.
Participant-Observation	<ul style="list-style-type: none"> [Same as above] Insightful into interpersonal behaviour and motives. 	<ul style="list-style-type: none"> [Same as above] Bias due to investigator's manipulation of events. 	Yes, extensively to implement the lessons learned from the first project team in the second team, which is the goal of action research.
Physical Artifacts	<ul style="list-style-type: none"> Insightful into cultural features. Insightful into technical operations 	<ul style="list-style-type: none"> Selectivity Availability 	No, because there are no physical artifacts available.

Information validation

The information collected from the sources mentioned in Table 9 can be subjective/biased so precautions should be taken to validate the information and ensure that this research is based on valid information. In order to do so some validation principles (Klein & Myers, 1999) will be used during the collection of information. These principles are shown in Table 10.

Table 10 Principles of Interpretive Field Research (Klein & Myers, 1999)

<p>1. The Fundamental Principle of the Hermeneutic Circle This principle suggests that all human understanding is achieved by iterating between considering the interdependent meaning of parts and the whole that they form. Triangulation can also be used in this principle by questioning two or more independent sources and making sure they all point to the same set of events or facts (Yin, 2004).</p> <p><i>This will be achieved by questioning different people within the same department but also people in other departments. Information retrieved from different sources that differ will be excluded from the research.</i></p>
<p>2. The Principle of Contextualization Requires critical reflection of the social and historical background of the research setting, so that the intended audience can see how the current situation under investigation emerged.</p> <p><i>This will be achieved by first reading some background information regarding the organisation and by continuously informing the pilot teams about the progress of the research.</i></p>
<p>3. The Principle of Interaction Between the Researchers and the Subjects Requires critical reflection on how the research materials (or "data") were socially constructed through the interaction between the researchers and participants.</p> <p><i>Key people will be questioned repeatedly regarding similar topics to ensure that the data obtained still is accurate. All data that is collected is also verified elsewhere.</i></p>
<p>4. The Principle of Abstraction and Generalization Requires relating the idiographic details revealed by the data interpretation by iterating between considering the interdependent meaning of parts and whole they form and reflecting on the social and historical background of the research setting.</p> <p><i>All observations and information retrieved is verified with different people in the organisation and are placed in context of the background information retrieved.</i></p>
<p>5. The Principle of Dialogical Reasoning Requires sensitivity to possible contradictions between the theoretical preconceptions guiding the research design and actual findings with subsequent cycles of revision.</p> <p><i>Theoretical information retrieved from studies is verified with members of the teams to make sure that the theory can be applied in practice.</i></p>
<p>6. The Principle of Multiple Interpretations Requires sensitivity to possible differences in interpretations among the participants as are typically expressed in multiple narratives or stories of the same sequence of events under study.</p> <p><i>This can be achieved by using data, information and method triangulation between different people and sources.</i></p>

7. The Principle of Suspicion

Requires sensitivity to possible “biases” and systematic “distortions” in the narratives collected from the participants.

While observing and interviewing team members they will be thoroughly questioned to identify possible biases. Where possible, links between the information retrieved and the theory are made.

All of these principles will be taken into account while conducting the practical research. These validation techniques will also be used while measuring the performance measures of all four areas of the alignment model described in Figure 2. It is important that these performance measures are as valid as possible to evaluate the progress of the team.

5 Results

Practical research has been carried out at TC Tubantia in Enschede to apply the theory into practice. This practical research will provide the practical background information that will be needed to create the implementation methodology. This research will be done according to the action research methodology.

To start off with, the sport editorial team will be analyzed. This team is one of the pilot teams mentioned at the beginning of this thesis. This team is slightly smaller compared to the second pilot team (culture and social activities) and is therefore less elaborate.

5.1 Pilot team 1 (sport)

This pilot team is in charge of producing content related to sport and recreation. The same group of journalists have produced content regarding sport since the beginning of the newspaper, but since September 2008 they have decided to rename their section to 'Sport and Recreation' and started working in a cross-medial setting with their own website. This group consists of six journalists that write content for the newspaper and website (http://www.tctubantia.nl/sport/sport_en_bewegen/). No representatives from other departments are member of this team.

5.1.1 Business/marketing strategy

Little business/marketing research has been done when setting up this new team. As the sport group basically already existed and just got another name and introduced the new website the people involved made the decision of skipping the market research.

Product

The team's primary concern is to deliver qualitative content at a rapid pace. News in the sport world travels very fast (for example the scores of a football match, regular updates of the Tour de France, winners at the Olympic Games, etc.). Because of this their primary goal is to publish any news they have as fast as possible on the website.

Most of the published content is about the regional football team (FC Twente). The website has different features that allow visitors to, for example, follow the club's football match in real life online via short message. The journalist present during the match uses his/her laptop and an Internet connection to publish the news/commentary on the website.

Price

The sport department has never had a marketing strategy to generate revenue. They neither meet with the marketing/advertising departments to discuss possible advertising campaigns. According to the members of the team it is difficult to create revenue.

The disadvantage of the setting of the sport and recreation team is that there is no representative from the advertising department. Most of the people involved in the team have an editorial background and write the content for the website and newspaper.

Promotion

Because the sport content is part of the daily newspaper and an extra sport section is added every Wednesday, no or little promotion is required to increase their readers' base. Their website on the other hand can benefit from some (more) promotion as visitor amounts are disappointing (6,240 page views per

month, with on avg. 2,210 visitors per month). A link to the sport website is present on the main website of the newspaper, but that is not enough to increase the website's page views.

Place

The place of the product is basically the newspaper and the website. The newspaper is delivered every day to the subscribed readers (except on Sunday) and the website contains similar content and is freely available for anyone who has an Internet connection.

Recommendations

- Find long-term advertisers/sponsors to cover the fixed costs.
- Find advertisers that match the content of the paper and/or the readers.
- Lower the barriers between the commercial/marketing department and the editor.

5.1.2 Organisational infrastructure and processes

The processes within this team are relatively simple. There is one leader within the group that is responsible for the planning and organisation of the deliverables. However, this difference in status or power doesn't affect the decision-making process because the journalists in the team know each other relatively well. Every team member has his/her own set of tasks week in, week out, so no discussion is required when assigning the tasks for the day/week.

Because the backgrounds of the team members are so similar there is rarely any new ideas being brought into the group, which decreases the chance of having discussions or opinion differences within the groups. This in a way doesn't affect the cohesion of the group in a negative way.

Agreements have been made within TC Tubantia that the Internet journalism department is responsible for placing new content on the website during the weekend. This department consists of 2-3 people during the week but in the weekend there is usually only one person available. This can lead to some organisational complications. For example, when a reporter works on location in the weekend at a football match, he has to send his article and images to the Internet journalism department via e-mail. It may be possible that the internet journalist at that moment isn't available which can delay the publication of the article for an unknown period of time, to much frustration of the reporter.

Recommendations

- Control the content of the website without interference of other departments. Especially if content has to be published immediately.
- Ensure people within the team come from different departments so that new ideas can be discussed and introduced.
- Appoint a leader who ensures that all agreed tasks are completed (in time).

5.1.3 IT strategy

Management has little or no interest in the new developments of this pilot team. Everything operates exactly the same as before this project. The only difference is that it got a new name and a new website. There are no clear objectives, no financial goals have been set, nor are cross-medial initiatives being discussed. Above all the team members are not even multidisciplinary, something that was the goal of this project team.

The only long-term goal given by management is to increase the interactivity on the Internet products to increase the number of visitors on the websites. This is

not only a goal for the sport team but also for the second pilot team (culture and social activities).

Regarding the website, the project leader indicates that their page views is less than they would like and have no idea how to increase these numbers. Looking at the website little to no interaction takes place. It is for example possible to place a reaction on the news items, from the 23 articles posted on the front page, only one article has reactions. Furthermore there is a poll on the website which changes on a weekly basis, generally speaking no more than 200 people per week fill in this poll, which is relatively low looking at the number of page views.

On the website it is not possible to come into contact with other sport fans, nor can readers publish their candid photos for example. Such features can improve the quality of the website and attract more readers to visit the website on a more regular basis.

Another typical thing is that there are no advertisers on the website except the ones from Google, DoubleClick and Tradetracker. The text published on the website is in no way according to SEO-standards (Search Engine Optimisation).

Recommendations

- Make references from website to print and vice versa.
- Agree on different targets regarding the website (not only in terms of page views / visits).
- Publish a lot of new content on the website on a regular basis to attract more returning visitors.
- Find ways in generating more revenue through advertising and new services.
- Ensure that the text published on the website is Search Engine Optimized.
- Create a community feeling by adding some interaction to print and website (for example readers being able to upload images, leave some comments, etc).

5.1.4 IT infrastructure and processes

The IT infrastructure at TC Tubantia is below the current standards, because of this many problems that arise which affect the productivity, efficiency, innovation and effectiveness of the whole work force.

Linking and enabling employees

Communication between the team members is done verbally; little to no IT is used to exchange ideas between them. So in this area IT plays no role. This is really a disadvantage because such a setting would probably lead to loss of information.

Knowledge base codification

There is no wiki or other kind of digital information storage that could improve the efficiency of the whole group if and when problems are encountered where other members of the groups may have the solutions.

Increase in boundary spanning

The sport department is rather traditional, even though they say that they're a multi-discipline group, they have little communication with the marketing and commercial departments. Even using e-mail communication doesn't remove the barriers between both departments. Team members experience the marketing and advertising department as having a negative influence on the quality of the content and its independence.

Efficiency

For the content aspect of the website they use the Escenic CMS system (escenic.com), which appears to be a renowned piece of software. This software is used by several big newspaper editors like De Telegraaf, de Volkskrant, The Sun and The Sunday Times. Currently TC Tubantia operates a four-year-old version of this piece of software.

This old version consists of two pieces of software, namely the client-side and the server-side. Both parts are implemented using Java. The server-side is hosted on a server located at Getronics and licenses have been bought for a number of computers being used at the headquarters of TC Tubantia and other regional offices. These offices are responsible for the regional news websites, which are linked with the main website.

The version of the software currently being used at Tubantia is not built to cope with different media types (video, audio and photographs) and is only able to cope with text and a limited amount of images (also in size). Because of this, the sport pilot team is not able to fully exploit all the multimedia.

When working on location (for example during a football match) it is extremely difficult to establish a (fast) connection with the server on which the Escenic server-application is hosted. Once a connection is made, it takes a long time (because of the low speed of the Internet connection) to have an article posted on the website. Placing an image related to the article on the website takes even longer because of its size.

Due to high server loads it may be the case that the caching system has to increase the period in which a page is refreshed. This increase in caching time can go up to 10 hours. This means that a news flash regarding, for example, the score of an important mach, can be published 10 hours after sending it!

Innovation

The computers being used by the sport department are relatively old and because of this is sometimes difficult to play back some videos that they have made especially for the website. Even editing the videos can be an enormous hassle because of the slow computers. Because of this the percentage of videos being published on the website is relatively low. The team members have to fight against these problems on a daily basis and affect the level of innovation.

According to the head of the team a new project that has been cancelled due to the slow computers was the live textual broadcast of the matches played by FC Twente. The laptops are so slow that they are unable to quickly upload the text typed in by the journalist to the website where the messages are supposed to be shown. As backup they always have a journalist working at the office that posts the messages on the website while watching the match on the television.

The leader of the sport team mentioned that there were a number of projects in the pipeline that were going to be launched within the coming months. These projects were well thought and discussed, included a reasonably good revenue model. At the end these projects were cancelled because management didn't want to take the risk of launching these technological projects because of the outdated technology. This kind of development by no means is beneficial for the innovative edge of the company.

Recommendations

- Make sure the CMS is adequate enough to be able to quickly post/upload information to the website.
- Ensure there are means to share information/media via the intranet/Internet.
- Ensure the IT infrastructure is good enough to support team members in their daily tasks, such as multimedia manipulation.
- Give offsite employees fast enough Internet connection to do the job.
- Ensure systems are capable of processing large amounts of data in as little time as possible to overcome delays.
- Ensure the website being developed has sufficient tools to create content that follows the SEO rules, generating more search engine traffic.

5.1.5 Conclusion

The project team is not well organized, has no goals and objectives, have to work with out-dated technology causing frustration among employees and limits their creativity. Team members have little to no knowledge regarding Internet and websites. There are no initiatives to generate more revenue through the website via advertisers or extra services.

Even though the group is said to be multidisciplinary there is little to no communication with the marketing and advertising department, which prevents giving the final product a more commercial touch and making it impossible to decide on ways of how to generate more revenue.

There are some features on the website that can lead to some interaction, but the community feeling is still not achieved. There are no long-term plans to finally achieve the desired level of interaction and therefore an increase in the page views.

5.1.6 Information validation

The information used for this team has been retrieved using documentation given by management, by conducting interviews with the team members and management, and with direct observations. The documentation was validated by verifying its sources. Some sources could not be validated because the people that had written a piece of the documentation no longer work for the organisation.

The documentation has been very helpful for the background information used to understand the setting. This documentation is however not used to construct the implementation methodology as in most cases the information was a little outdated. It also contained no information regarding the infrastructure and processes within the team.

Different people with different status in the organisation have been interviewed to verify the same information. Information given by one employee was always verified by for example his/her superior. The use of data and information triangulation made sure that the information that the interviewee gave was valid.

During this research, the journalists working for the website and printed product were observed for an extended period of time. This was done to make sure that the tasks that occurred on a particular day were no exception to their normal set of tasks.

The documentation obtained from the head of editorial staff and the director of TC Tubantia was used to understand the setting and context of the research. It was important to understand how the organisation is structured and how

decisions are made. Understanding this helps create an implementation methodology that fits within the organisation.

During most interviews several theoretical findings were discussed with the interviewees to make sure that theoretical models such as the alignment model could be used in their organisation. From many conversations it was clear that structuring this research based on the alignment model is a good idea.

5.2 Implementation methodology after the first iteration

Having learned a lot from the first pilot team it is now possible to start designing the implementation methodology according to RUP that will be used for new projects in the organisation.

5.2.1 Guidelines

G1. Before beginning with a new project team it is important that the management level has a clear idea of what the goals are of the new project team.

G2. (Market) research has to take place to identify the opportunities and the threats and some financial research must be done to verify whether the project team is worth the investment. This financial research must contain on one side the costs that are involved and on the other side the revenue prospects. This financial research can only be done after having completed the market research.

G3. The idea of the newsroom of the future is to have a multi-disciplinary team working in a cross-medial manner. To achieve this the group should be at least multi-disciplinary, thus representing different departments within the organisation.

G4. To have the cross-medial setup a website or a different medium to the printed newspaper has to be available or possible to build.

G5. In the beginning, people from different departments should be called together to form a group and some research has to take place to identify what software/hardware can be used to setup the second communication channel (in this case a website).

G6. Once a group has been formed, good communication channels have to be setup to ensure that communication between the members flows smoothly and quickly.

G7. Possible barriers of communication should be identified and solved to prevent friction between team members.

G8. When possible an IT system should be setup, which would help to store all information that has been exchanged, as this information may be useful.

G9. Codifying knowledge also helps to learn from people's mistakes, especially if this information can be used when creating a new project team in the future. A wiki is a good example of a system that can be used to codify information.

G10. A weekly meeting should be organized so that team members can exchange ideas face-to-face and possible misunderstandings can be solved. These meetings also help for teambuilding and to ensure that everyone is up to date with what is being done and what problems have been encountered and/or solved.

G11. After some time it is very useful to arrange an evaluation meeting in which the management level and the project team evaluate the progress of the team.

This evaluation would include some financial information of the progress of the team, discussion of what has been achieved and what the problem areas still are.

G12. The evaluation sessions should also be codified to ensure that what has been learnt can be used in the future.

5.2.2 Techniques

T1. The market research should contain analysis of similar ideas maybe initiated by other companies in the same market. Benchmarking should take place to verify whether or not the idea is realistic financially and whether it has any opportunity of success. Any financial information that can be retrieved from the market can also be used as a solid foundation for the financial research.

T2. To find the adequate people for the new team several interviews have to be organized with candidates that are interested in the position. Their IT knowledge and abilities should also be tested to ensure that they are capable of working cross-medially. Once a team is chosen team-building meetings should be organized.

T3. Team members should all agree on using some tools that help to organize the team. These tools can be used to codify the knowledge exchanged within the team and can help organize the teams so that tasks are monitored and completed. Once the tools have been chosen, it has to be investigated whether the IT infrastructure is capable of running these tools.

T4. Evaluate the team ever two to three months by taking the agreed objectives and their deadlines and whether these objectives have been achieved. Furthermore, a summary of the information exchanged and stored in for example the wiki should be analyzed to for example evaluate the ideas that have been generated and to determine whether or not IT is being used effectively to improve communication.

T5. The lessons learned from the evaluation sessions have to be codified but also used to improve the implementation methodology created at the end of this research. These improvements can increase the chances of success of a new team.

5.2.3 Tools

Information gathering tools

A large part of the information that the team needs is about the (sport) market. This information can be used to (think of the four Ps) a) determine whether or not the new project has any chances of success, b) determine what kind of product has to be created to attract customers, c) know what the pricing mechanism should be, d) where and to whom the product should be distributed to, e) determine how the product should be distributed.

To obtain this information, TC Tubantia can use their readers. Chances are that these readers are going to be stakeholders of the new product. Valuable information can be retrieved from them regarding all aspects mentioned above. To retrieve this information the organisation can publish some polls on the website and in the printed product with some ideas of new products/services. The organisation can also call the readers for a short interview and case studies can be initiated with a sample of the readers to test some new products.

Another type of information that is also crucial for the success of the project is information regarding the organisation and its (IT) infrastructure. People responsible for the infrastructure have to be questioned to find out whether the infrastructure as it is now is capable to support the new project. If this is not the

case then further analysis has to be undertaken to identify what the costs are of improving the infrastructure. Communicating with suppliers and other companies that are specialized in these areas can retrieve this information.

Decision-making tools

The drive of creating a new project is to generate more revenue. The decision of starting a new project may primarily be based on whether or not the new project will breakeven and be profitable in the near future. To help, decision tools can be used to generate different financial scenarios based on the financial prognoses obtained from the market research. All of these scenarios and probabilities can be combined together to determine the overall chances of success of the project. The more information there is available the more realistic the scenarios are.

Furthermore, information regarding the organisation can be used to decide whether the project can be run using the current infrastructure. Additional costs can be added to the scenario generation tools.

Design tools

To design the new project team the best source of information is probably the team members. The team members have all the know-how of how to setup their part of the project: advertising department knows how to generate revenue, the editorial staff know how to create a qualitative product, design department know how to design the new product, etc. A combination of all this information gives a good idea of what qualities, tools and information have to be present in the new team. This information should therefore be collected using the information gathering tools.

A good reference for TC Tubantia would be to look at case studies in which similar project teams have been setup and learn from their mistakes. Even better though is to codify all information from previous projects and learn from their mistakes. Once several project teams have been initiated, enough information can be gathered to design a new project team.

Change tools

To monitor the changes within the team information has to be collected regarding the project's progress. Every decision, problem, solution, opportunity, action, process, etc should therefore be recorded in a planning tool which can be used to monitor the progress of the team.

Also the products being created can be captured in different timeframes to see the changes. This can simply be done by keeping every printed product that has been published and by regularly taking screenshots of the website and saving this on a central location.

Evaluation tools

In order to evaluate the project, information regarding the prognoses, goals and targets have to be recorded at the beginning. This kind of information can be inserted in a planning tool. This tool should always be used to add deadlines, monitor the progresses. At each evaluation moment the prognoses and the actual figures can then be compared to determine whether or not the project is successful. The information gathered for these evaluations should also be codified so that new projects can learn from the possible mistakes.

5.2.4 Templates

Based on the information collected it is possible to create some templates that would help the members of the team to improve the performance and structure of the team. These templates are shown in this section and will be validated using the team members at the end of the research.

Table 11 Template: differences between website and printed product

<i>Based on your experience with both the website and the printed product, indicate what the <u>differences</u> are between both products.</i>	
Website	Printed Product

Table 12 Template: similarities between website and printed product

<i>Based on your experience with both the website and the printed product, indicate what the <u>similarities</u> are between both products.</i>	
Website	Printed Product

Table 13 Template: goals and people responsible

<i>In your opinion, what are the long- and short- term goals of the project and who do you think are responsible for these goals/objectives?</i>	
Goal	People / departments responsible

Table 14 Template: how to generate revenue with both products

<i>Based on your experience, how can we generate more revenue with the printed product and the website?</i>	
Website	Printed Product

Table 15 Template: problems employees encounter with IT

<i>List the things / tasks you would like to do with IT or are currently doing with IT. Next to the task, indicate whether or not you are able to fulfil this task. If not, please indicate why not.</i>	
IT task	Able to do it? (Why not?)

5.3 Pilot team 2 (culture and recreation)

The second pilot team is a larger group compared to the sports team and was launched in October 2008. The team is fully multidisciplinary. The team members come from different departments, namely: editorial, marketing, sales, advertising, layout / print, website and project management. The group is cross

medial because the products that this team create are the website and the weekly edition of the newspaper.

The product of this team is a weekly edition, which is published every Thursday of the week together with the daily newspaper. This edition contains information regarding new events that are related to culture and recreation (free time). It can contain interviews with prominent people in the entertainment business, but it may also contain critics of food that is being served in a regional restaurant. The printed version also contains references to the website (where possible) and a summary of the agenda at the end of the edition.

The website is basically an online agenda where people can retrieve information regarding any new activities that are planned to take place in the (near) future. Furthermore there is also more information that is complementary to the content that is published in the weekly edition. The idea of the website is to create a community in which members exchange ideas and interact with each other whenever they share the same hobbies and/or interests.

5.3.1 Business/marketing strategy

The business/marketing strategy of this pilot team has been discussed thoroughly. Before the introduction of both these new products, there have been talks with potential partners that had interest in using the website and the new edition as a new communication channel. Big partners include the Nationaal Muziekkwartier, which is a regional theatre located in Enschede and Bentheim, a castle located in Germany near the Dutch border by Enschede.

Product

The product has been thoughtfully designed and formed by the whole team by arranging brainstorm sessions before the formation of the group. It was clear what the website had to offer and what information and content the printed edition should contain.

In the beginning, there were many discussions regarding the product. It was difficult to combine all the disciplines into one product so that each member of the group was satisfied with the final product. Because the majority of the team members work on the printed edition, the majority of time during the weekly sessions is spent discussing the printed weekly edition. Examples of topics that are discussed are the picture on the front cover (most of the times it was not to the liking of the team members), the combination of advertisements and content on the pages and where/how advertisements should be placed throughout the newspaper.

During each meeting it was recorded how much time was spent discussing the printed product and how much time was spent on the website. On average, an astonishing 70% of the time was dedicated to talking about the printed edition. About 20% of the time was spent talking about marketing matters such as readers' activities. The final 10% was spent on informing/discussing the website. This gives a clear indication of how the priorities are regarding the website.

Price

The newspaper edition and the services on the website are offered for free. So no revenue is generated via these channels. The only revenue that is being generated with these products is via advertisements and readers' actions. Advertising on the website doesn't have a top priority because team members want to wait till the number of page views increase significantly to be able to offer advertisers a good deal. Readers' actions are starting to become an interesting source of revenue, especially since the launch of an excursion to the Bentheim Castle, where readers can join for a small contribution.

Furthermore management is trying to come into contact with big business partners that may be interested in using the printed edition and the website as their communication channel. This channel can be used to reach readers that are interested in recreation and culture. These kinds of yearly contracts are very interesting to accomplish. Wegener would then be assured for a certain amount of money for that year in exchange of their services.

Promotion

Many forms of promotion have been tried and are still being used to create exposure among the regional public. The website is advertised on the newspaper's main website with a link to twentuitdekunst.nl (website of this project). Furthermore a small advertisement is shown on the printed version of the newspaper every Thursday. The majority of the advertisers are restaurants and hotels that are located in the region and most of the time offer a special menu for the readers of the paper.

Furthermore the group tried to place some free samples of the newspaper in different (cultural) locations to create some exposure. However the costs of distributing these copies and then collecting the newspapers that weren't taken that day were too high to keep this idea going.

No other promotional activities are carried out, which is a shame really because the website can use some more publicity to increase the number of page views. The increase in page views make the website more attractive for advertisers to advertise and may also benefit the printed edition.

Place

Similar to the sport pilot team, the weekly edition is distributed within the main daily newspaper. Furthermore the website is published on the Internet and is linked to from different websites within the Wegener group.

Recommendations

- Offer a complete advertising package for website and print.
- When approaching potential partners, indicate the idea of using the newspaper as a communication channel.
- Offer new services that are worth paying for by visitors of the website to generate new revenue streams.
- Attract new advertisers to the website by promoting the website on the Internet by using links, affiliates and Search Engine Optimisation (SEO).
- Do some market research to evaluate the chances of success of the project.

5.3.2 Organisational infrastructure and processes

The organisational infrastructure at TC Tubantia regarding this pilot team is rather straightforward. Each team member is responsible for certain tasks and they all communicate with each other when working on the printed edition and the website. The information coming from management flows through the head of editorial staff and then to the team member(s) involved.

New ideas are discussed during the weekly meetings. These ideas are usually about how to create more revenue, how to improve the quality of the newspaper and website, and how to create awareness. The problem however is that these ideas are not being followed through to something concrete. Nobody within the group takes the responsibility to develop the idea into something concrete. No concrete tasks are assigned to people making the chances of the ideas being implemented very small. Most team members have the idea that they already

have enough to do and are not willing to do some extra tasks. Because of this, precious ideas are never made reality.

A possible solution to this problem is to appoint somebody from outside the team who is responsible for the communication between the different departments, ensures that all the ideas that have been discussed are properly followed through and he/she should ensure certain decisions are taken by talking to the people involved.

Recommendations

- Reserve/allocate capacity (resources and people) to run the website.
- Reserve/allocate capacity (resources and people) to create the printed edition.
- Organize meetings every x weeks to discuss print and website.
- Ensure everyone is able to publish content on the website and print (training).
- Ensure everyone is aware of his or her tasks by explaining this at the beginning of the project.
- Assign specific tasks to team members to ensure that these are accomplished.
- Ensure there is enough motivation among team members by appraising their work and informing them of what they have achieved (page views, increase in revenue, etc.).
- Form the group as soon as possible to generate ideas and to prevent last minute activities.
- Regularly evaluate the progress of the project and also follow-up on the tasks that have to be done.

5.3.3 IT strategy

The printed product has evolved into an edition of high quality. Both the content and the layout have improved over the weeks giving it a more professional look. The website has gone through a similar trajectory but at a much slower pace. The main changes that have taken place with the website is the linkage between the website and some partners so that the agenda's could be imported into the system automatically. Also the menu structure has been simplified to encourage visitors to browse through the website and view more agenda items.

Interaction between and with the visitors was since the beginning a very important element that had to be present. Until now, nothing has been undertaken to improve this interaction and the community feeling is nearly non-existing looking at the number of reactions placed on the website (12 until now since the launch of the website in September 2008). This is definitely a shame, because visitor-input can be used to improve the website, improve the number of visitors coming to the website and finally also improve the potential of the website to generate revenue.

Another important point that is not followed through consistently is the referencing between both products. The website and printed edition are being promoted as if they were two separate products, but in reality they are complementary goods and must be presented as such to the public. To achieve this, references from the printed edition to the website must exist and references from the website to the printed edition too.

Also the way that the content is written on the website is not up to standards. It is not sufficient to publish exactly the same content from the printed edition on the website. Visitors viewing the website read the content in a different way. The articles should be short, multimedia should be added and the content should be written so that it is search engine optimized. None of this is being done, making it

difficult to use search engines and other similar Internet related services to promote the website, attract more visitors and make advertising on the website more attractive for advertisers.

Recommendations

- Make a realistic financial picture of the setup using input from the team members.
- Ensure employees have had proper training to work with website/software.
- Stimulate employees to use as much multimedia as possible to enhance the website and printed product.
- Once the website is launched stimulate visitors to contribute to the community.
- Continuously reference the website and print in both media to promote both products.
- Make a series of milestones for the launch of the website.
- When possible, use existing technologies/systems to start a new project.
- Reserve time to implement and test the website before the kick-off.

5.3.4 IT infrastructure and processes

When it comes to IT, the organisation doesn't have a clear path in mind on how to solve/improve their current IT infrastructure and processes. The main problem is that little attention is being paid to this matter resulting in old software, hardware, communication methods, etc. The frustration that can be noticed everywhere in the organisation can affect the effectiveness and efficiency of the organisation.

Linking and enabling employees

Communication between employees within the team is mostly over the telephone / face-to-face. IT doesn't really play a major role in this aspect. E-mail communication is present, however much more facilities can be used to enhance the communication. Use for example virtual drawing boards, visual presentations, online planning systems, etc. All of these tools could be used to improve the quality of the final product.

Very often team members are unaware of what the final (print) product is going to look like on Thursday when it is published and distributed. Because of this lack of feedback before publication, every week there is something to comment on regarding the printed version (think of an inadequate cover image, incorrect positioning of some advertisements, no referencing to the website, etc). All of these issues could have been solved if the final draft version of the newspaper were to be presented (online) to (all) team members before printing.

Knowledge base codification

No knowledge base is present, making it difficult to codify knowledge. Technical knowledge is usually shared between colleagues in the same department. This knowledge usually consists of information on how to handle technological processes. For example, a while ago journalists were having trouble placing images on the website, one person found a workaround and communicated this verbally to all colleagues within the same department. This kind of information would be ideally placed on an online knowledge base so that people from other departments/offices can also profit from this information.

Increase in boundary spanning

As said no knowledge base exists and no information is being shared between departments using IT. Therefore there is little increase in boundary spanning. However there is an increase in boundary spanning due to the weekly meetings with the team members. In these meetings information is certainly being shared

ensuring that all departments have a say about the final product (print and website).

Efficiency

Efficiency is not really an important topic within the pilot team. The goal of all team members is to finish the printed product on time so that it can be printed on Thursday. The goal of the team members is not to improve the efficiency in their daily tasks but rather in coping with the outdated technology they have to work with.

The IT infrastructure used for this project team is the same as for the rest of the organisation. The only difference is, is that the website of the group is based on a different software than the main portal. Compared to the sport team, the cultural team doesn't publish any time-critical content on the website. If the website were to be delayed for a couple of hours then it wouldn't affect the quality of the content.

Innovation

In comparison with the rest of the systems being used at Wegener, the website of TwenteUitDeKunst is not being hosted at Getronics, but at a (smaller) local company, which isn't very keen on securing the whole environment to a maximum. Because of this, the website works much quicker, files on the website are easier to access and uploading files and content to the website is done more efficiently compared to the Escenic CMS. This gives an indication of how outdated and slow the Escenic software package really is, and that there are alternatives to this system that have much more advantages that Escenic has to offer.

The computers being used by the journalists are relatively outdated making it fairly impossible to create, edit or view multimedia content such as large images, videos and slideshows. This is a bottleneck as the team is supposed to work in a cross-medial way. The journalists don't have the necessary technical background to work with these 'new' media formats and therefore prefer to stick with plain images and photographs.

Recommendations

- Ensure there is a knowledge base present before starting a new project so that ideas and information can be shared from the beginning.
- Facilitate any form of electronic (visual) communication methods so that team members can communicate with each other more efficiently.
- Upgrade the IT infrastructure so that employees can work efficiently with the latest techniques.
- Ensure there is a system present within the organisation that can be used for the new project. If such a system is not available acquire a system that matches the requirements.

5.3.5 Conclusion

Looking at the improvements since the beginning of this project, the final products are of a good standard and the team members should be proud of what they have achieved. Especially if you take into account that Wegener Nieuwsmedia has a long history in which cross medial and multi-disciplinary teams were non-existing.

On the other hand however, there is room for improvement. The IT infrastructure has to be upgraded as soon as possible so that the organisation can benefit from the improved efficiency and effectiveness new technology. This is a large investment, but if done correctly and ensuring that employees know how to maximize their output using this new technology then the investment will definitely be worthwhile.

Together with this, employees should be motivated to use the new technology to exchange their ideas and knowledge electronically. It is not good that a lot of knowledge is being lost when people leave the organisation. It is also not good that employees don't share their knowledge to help others with problems they may have solved before. Helping each other within an organisation improves the overall efficiency of the organisation.

Regarding the organisation, more research should be done before starting a new project. Having a good (technical and organisational) infrastructure and well-thought processes increases the project's chances of success.

5.3.6 Information validation

To obtain the information regarding this pilot team, team members were observed and interviewed. Documentation was also used to gather background information. From time to time participant-observation was used to apply what was learned from the first iteration to this team.

To retrieve the information, similar techniques were used as previously stated for pilot team 1. Different people from the organisation were interviewed to verify all the information that was gathered. If any discrepancies were found then the information was neglected from this research.

Every weekly meeting was observed to monitor the progress of the team from day one until now. This progress is very important because it measures how successful the participation from our side was. The lessons learned from the first pilot team were applied to this team and the changes/impacts were registered to improve the implementation methodology.

The goal of this second iteration was to apply what was learned from the first iteration. To accomplish this, lots of reasoning was done to identify possible contradictions and make sure that the information used to create the implementation methodology is correct.

5.4 Implementation methodology after the second iteration

Now that the second iteration has been completed it is time to create the framework of the implementation methodology.

5.4.1 Guidelines

G2'. It is important that this market research is done thoroughly to ensure that the idea is thought through before starting such a project team. The market research should include elements such as target group analysis, size of the market (segment), revenue opportunities, financial analysis and prospects, financial forecasts, required resources of the organisation and the (possible) organisational impact.

G13. When possible and required, potential and/or existing long-term financial partners should be contacted to attract them to this new project. This will help to cover the basic costs that of the project.

G14. If the idea has to make use of the technological infrastructure of the organisation, then research has to be done to identify whether the infrastructure is adequate to support the idea. If this is not the case then alternatives should be discussed and information should be collected to find out whether these alternatives could be implemented.

G15. Once the research is done and documented, it should be discussed with management to determine whether the idea has any chance of success. Once the project is approved the necessary resources will be reserved to the project team.

G16. A project team (where possible consisting of people from different departments) should be formed in which the members discuss the idea even further and assign particular tasks to each member to create the product.

G10'. Weekly meetings should take place in which all team members should be present to discuss their progress. New tasks that may have to take place should be assigned to the proper team member and these tasks should be evaluated the next week to ensure that these tasks have been followed through.

G17. Each meeting should be documented and sent to all team members to ensure that they are all up to date with what has been discussed and what tasks should be completed before the agreed deadline.

G11'. Every couple of weeks/months an evaluation meeting should take place in which all the work that has been done is evaluated. When possible representatives of the management level (director, manager of the marketing and sales department and head of editorial staff) should also be present in one of these evaluation sessions to discuss the financial and organisational aspect of the project team.

G18. After a number of months an extended evaluation session in which the whole process of setting up the project team from beginning till now is discussed. With such a session various improvements may come up regarding the guidelines and steps that have been followed when generating the ideas, doing the research, setting up the teams, preparing the technological framework, creating the product and evaluating the tasks every couple of weeks. These improvements can be used to change the guidelines.

5.4.2 Techniques

T6. Before even beginning with discussing new ideas for a new project, the IT department should prepare an environment in which all documents that are written by the people involved with the project can be stored and downloaded. This way no information is lost, everyone can access the information from their own computer and copies can easily be made.

T3'. During every session it is very important that everything that is discussed is documented in as much detail as possible, but the documents must stay readable in case documents have to be reread at a later stage by other people en also to monitor whether or not what has been discussed / agreed have been followed through.

T7. During each session it should be made clear who is responsible for which actions so that these actions are followed through. The assignment of tasks should be done orally and on paper, so that misunderstandings cannot take place.

T2'. Regarding the website that may be part of the project team, the employees that have to work with the website should be (when necessary) trained to ensure that the website is used to its full potential. Regarding websites in which content has to be published the editorial staff should always use SEO techniques to improve the chances of being found via search engines and increase the number of unique visitors on the website. These techniques consist of entering meta-information (meta-tags, meta-information, meta-keywords) and the text should be formatted in such a way so that important keywords are repeated often, important words are highlighted with bold and adequate HTML tags are used.

T8. With regard to the printed product, the editorial staff has to make sure that they continuously reference to the website for extra information regarding the article, news, column, etc printed in the newspaper. This way they ensure that readers are also informed about the website and are also directed to it.

T9. The representative of the marketing department has to spend time looking for long-term relationships with partners that are interested in using the new product as a communication channel. This guarantees a steady income, which will be able to finance the whole project making it a success.

5.4.3 Tools

Because the pilot projects discussed in this research have a technological component, the tools discussed in this section are meant to help the team members improve their work processes with the use of tools based on IT.

Information gathering tools

The current problem is that the knowledge and information being exchanged is done orally and not codified. Information is therefore lost, especially when employees with a lot of (technical) knowledge leave the organisation. To solve this problem, all general information that is collected during the project should be codified on for example a wiki. This wiki should be accessible by all employees of the organisation.

Decision-making tools

The problem now is that the research done before starting a new project isn't done thoroughly enough to be able to make appropriate decisions. To solve this problem much more information regarding the market and the organisation has to be collected using the tools mentioned earlier. This information can then be entered in several modelling tools that generate several scenarios and forecasts giving a good idea of what the worst-, neutral- and best-case scenarios are. Based on these scenarios the management level is then able to make better decisions. It also helps them to easily establish some goals and targets to ensure that the lifecycle of the project is as expected.

Design tools

The processes regarding the printed product are acceptable. However, better design tools should be used to improve the quality of the website. To manage the website linked to the project it is essential that a Content Management System (CMS) is present. The CMS should be user-friendly so that the editorial staff is able to work with it, publish the news quickly, be able to customize the layout of the website where needed and everyone can access the system from anywhere (inside and outside the organisation) with any computer to ensure that when news has to be published, this can be done. The preference would be a CMS, which is online-based and not one, which is based on an old infrastructure with a client and server combination.

Change & evaluation tools

The meetings that take place between the team members are not well organized, tasks that are discussed are not assigned to the appropriate people and no control takes place to ensure that the assigned tasks are actually being carried out. To solve this problem, the team should make use of planning and workflow systems with which tasks can be entered into the software, can be assigned to the appropriate employees, employees can enter information regarding the status of the task and project management can monitor all the activities and can interfere when necessary. This tool can also be used to evaluate the team as a lot of information regarding the work processes, time, resources, results, etc, are collected in this system.

5.4.4 Templates

The best and possibly the only template that is necessary for such a cross-medial, multi-disciplinary team are all the points that have been discussed in section 5. These points cover all four areas that are involved when setting up such a project team. Chances are that this template will be extended each time it used for a new project, which will each time improve the chances of success for the next project that will be started. The combined template can be seen in Appendix C.

To help new members of a similar project team, some tables and diagrams have been created that can be used as templates and would help to structure and evaluate the project team. These diagrams are shown below and will be evaluated in the next section.

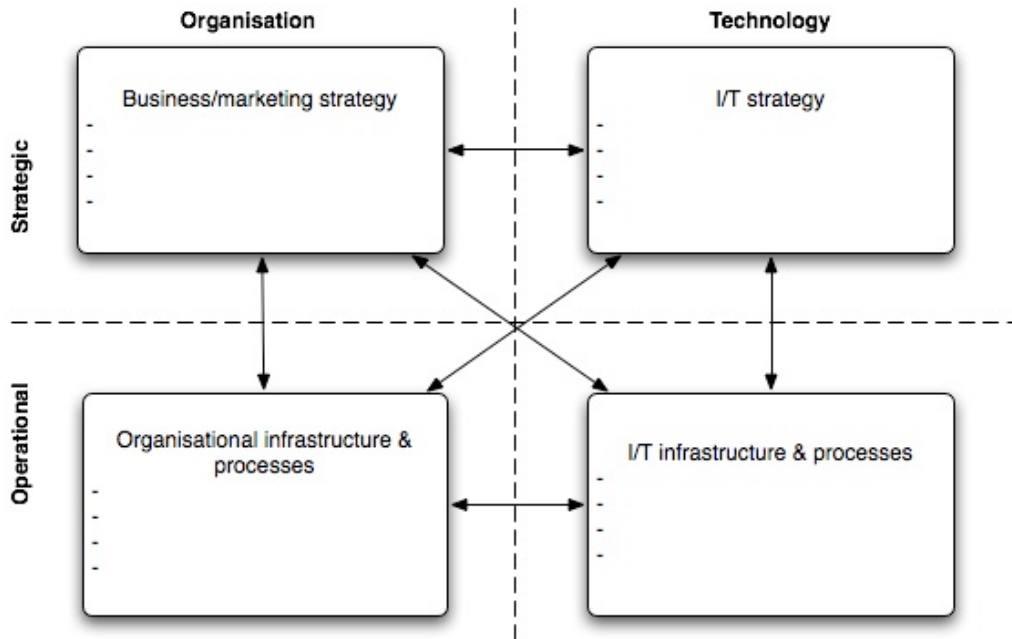


Figure 6 Template: people responsible for the four areas of alignment

Table 16 Template: ideas to improve the interactivity of the website

<i>List a number of ideas that would help to improve the interactivity of the website.</i>	
	Idea
1.	
2.	

Table 17 Template: things you have learned until now

<i>If at any time you have learned something new related to the work you're doing, please note these as descriptive as possible.</i>	
	What have you learned?
1.	
2.	

Table 18 Template: task management

During the project team tasks are assigned to members of the team, which have to be completed before a deadline. Please list all the tasks, deadlines and the people responsible for these tasks in this table. Also indicate whether or not the indicated task has been completed.

Task description	Person responsible	Deadline	Completed

While doing research, ask yourself the following:

- Is the source reliable?
- Have you used different sources to validate the information?
- Is the information relevant?
- Can I use this information for our organisation/setting?

If you have answered 'yes' to all of these questions regarding one particular piece of information then it is safe to include it in the (market) research.

Figure 7 Template: questions to be asked while doing research

5.5 Differences between pilot team 1 and pilot team 2

Table 19 shows on an abstract level what the differences are between the two pilot teams discussed in the previous sections. This table is useful to understand what the main issues are and what the areas of improvement are.

Table 19 Comparison of pilot team 1 and 2

Area	Pilot Team 1	Pilot Team 2
Organisational / marketing strategy	There is no clear organisational/marketing strategy. No thought has been put in finding ways to generate new revenue streams.	There is an organisational and marketing strategy present, however this strategy is too vague, making it difficult for team members to work towards the goals.
Organisational infrastructure & processes	The team members all have similar backgrounds making it difficult to work in a multi-disciplinary manner.	Tasks are not assigned to team members, which means that tasks are not being completed (on time). More evaluation has to take place to ensure that the team is able to achieve objectives and learn from their mistakes.
IT strategy	The team makes good use of the website to communicate the latest news to visitors (especially scores of the latest football matches). However, the team has no clear objective when it comes to doing new things with the website.	Objectives regarding the website (visitors, unique visits, page views, etc) are clear, however the whole team should cooperate to achieve these objectives. Everyone works individually.
IT infrastructure and processes	This is the bottleneck for most new ideas that are brought forward by the team. Current technology makes it also difficult to carry out day-to-day processes (website is difficult to update, news is published too late and the system is not flexible enough).	This team shares the same IT infrastructure, however the team does use a different website which is more flexible and stable compared to the Escenic package used by the first pilot team. The problem however is that the website is not used to its full potential.

5.6 Alignment model representing both pilot teams

For this research, the template that contains the alignment model (Figure 6) was used to fill in the names of the people that are responsible for all four areas of the alignment model and where possible the links between these areas.

5.6.1 Alignment model for the whole organisation

To achieve an understanding about how the organisation looks like in terms of the four areas of the alignment model all departments have been categorized into the four areas and placed into the model resulting in Figure 8.

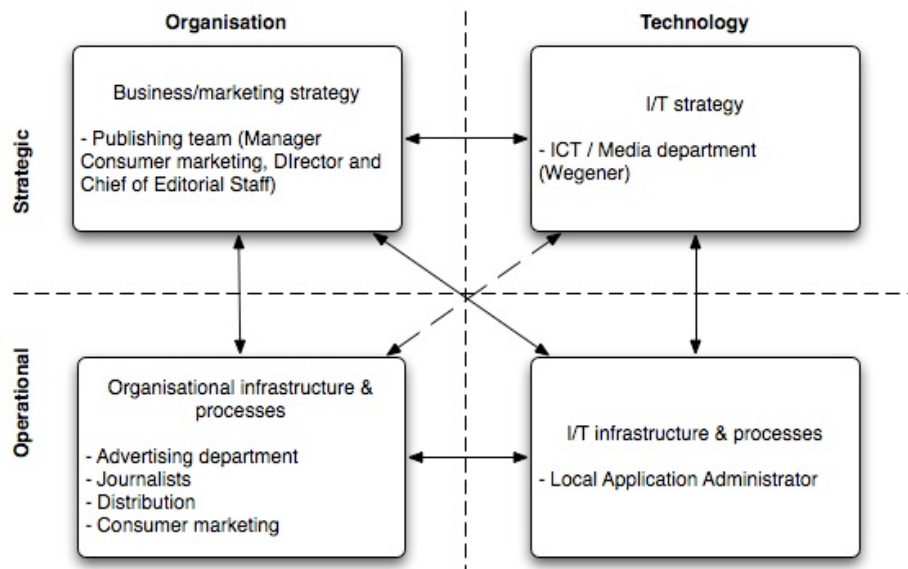


Figure 8 Alignment model for the whole organisation

Based on the model, it can be seen that the organisation is slightly out of balance when it comes to the technology and organisation aspect of the alignment model. In the real world this would always look that way because the organisation has to have more diverse departments to operate correctly (marketing, advertising, work floor employees, directors, etc.), while less departments can manage the IT processes, strategies and infrastructure. It is however good to see that there is a balance between the strategic and the operational side of the alignment model.

The arrow between the I/T strategy and organisation infrastructure and processes is dashed because this link is currently missing. Communication regarding the IT strategy is always done via the IT infrastructure and processes area. This can slow down the decision-making process when it comes to IT strategies and can lead to communication.

5.6.2 Alignment model for pilot team 1

Having discussed the alignment model for the whole organisation, it would help to know what areas the team members of the first pilot team represent. The alignment model for this team is shown in Figure 9.

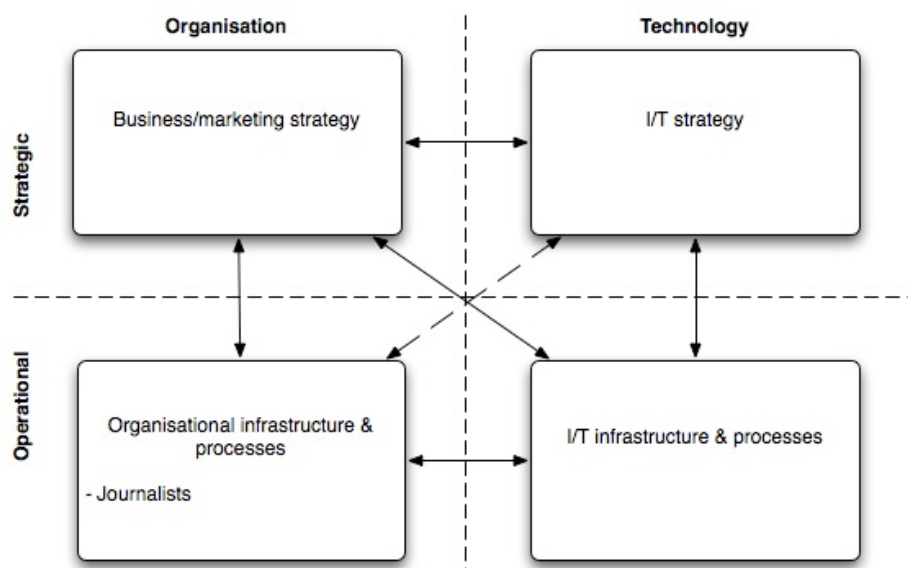


Figure 9 Alignment model for pilot team 1

This is a good example of how the alignment model of a project team shouldn't look like. The team members only represent the operation and infrastructure & processes aspect of the organisation and there are no representatives of the other departments. Because of this, the team cannot be classified as being a multi-disciplinary team and should therefore try to involve more people from other departments.

5.6.3 Alignment model for pilot team 2

Pilot team 2 does consist of team members from different departments, so having that in mind, chances are that the alignment model for the second pilot team are going to be more balanced and complete compared to the first one. Figure 10 shows this.

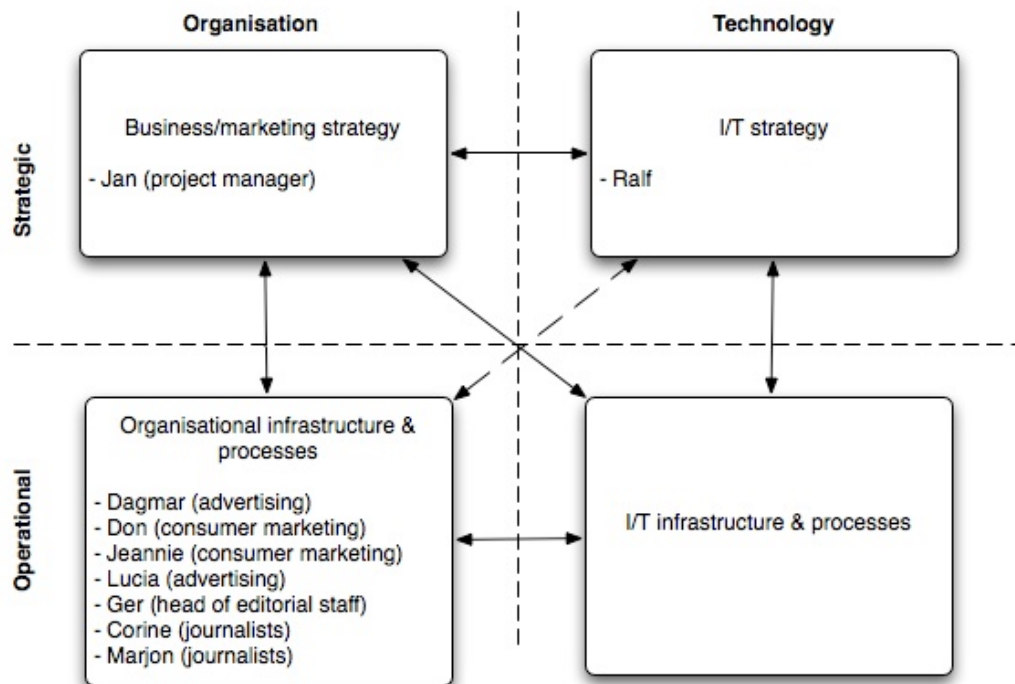


Figure 10 Alignment model for pilot team 2

Even though enough people represent the organisation side of the model, there are hardly any representatives of the I/T departments. Because of this the model is slightly unbalanced making it difficult to quickly solve any IT issues that may be present. To solve this problem, more people from the IT departments have to join the group and take part in any discussions the group may have. It should be possible to communicate directly with the strategic / operational IT representatives if any technological issues were to take place.

6 The implementation methodology in practice

An implementation methodology has now been designed based on the information obtained from this case. The templates that have been included in this implementation methodology have been designed based on the recommendations given throughout the research. These are meant to help the team create some structure in the team and force team members to think about essential parts of the project (planning, goals, targets, IT infrastructure, strategies, etc.).

A research has been carried out to find out whether the templates designed in this research can be of any use in the practical environment. All the templates have been printed out and distributed among the different team members of both pilot teams. A meeting has been organised to discuss these templates with 10 team members. Each team member indicated whether or not they found a given template useful or not. Table 20 indicates the results of this research.

Table 20 Research results on templates

Template	Useful	Not useful	Comments
Differences between printed product and website	10	0	Some members of the team honestly indicated that they regularly forget that there is also a website that has to be maintained.
Similarities between printed product and website	10	0	
Long- and short-term goals & people responsible	10	0	Very useful especially when making sure that tasks are being completed.
Generating more revenue with website and printed product	10	0	Very useful especially for the marketing department to continuously think about new revenues. Other disciplines find it difficult to fill in this table but understand that it is useful.
(Not) able to do certain IT tasks	10	0	Team members are continuously confronted with IT issues and find it useful to write these down and to communicate these issues to the IT department.
People responsible for four areas of alignment	10	0	Useful as it covers all areas of the organisation and helps monitor the balance.
Ideas to improve interactivity	10	0	Interactivity is lacking on the website and is therefore useful to discuss this in detail with the team using the template.
Learning new things	10	0	New things are learned every day however what has been learnt is never shared, which is a shame.
Tasks, people responsible and deadlines	10	0	Useful to monitor the progress of the tasks.
Guidelines for research	10	0	Improves the quality of the

As shown in the above table, all templates have been marked to be useful for existing project teams and for project teams to come. Team members now understand that it is important to think about all the different disciplines that are involved while preparing and executing the project.

General remarks

During this research some team members gave some general remarks regarding these templates. One member of the team (a journalist) mentioned that these templates would only be useful before the implementation of the team. This is an interesting remark that requires some attention.

Some templates are meant to be used at the beginning of the project, for example the template indicating the differences and similarities between the printed product and the website, the figure representing the people responsible for the four areas of alignment and the guidelines for research. However there are also some templates that should be used in a continuous basis, for example the template containing the long- and short-term goals of the team. Goals are modified on a continuous basis not only at the beginning of the project. These changes have to be registered and the (new) people responsible for these goals have to be written down.

Other templates such as how to generate more revenue with the website doesn't only have to be used at the beginning of the project but should always be taken into account, especially when new functionalities and opportunities are being discussed.

The goal of these templates is to give some structure to the team on a continuous basis, it shouldn't be seen as something 'that has to be filled in and forgotten about', but rather as a tool to support the day-to-day tasks and the long-term goals and objectives. It is essential that the people using these templates are aware of this and don't see these templates as a waste of time.

7 Conclusions

7.1 Usage recommendations

Before using this implementation methodology it is very important to indicate that this methodology has been created based on information that has been collected while analyzing both pilot teams. As it may have become clear while reading the research teams can differ a lot from each other in terms of the product being made, the setup of the team, and the goals/targets set by the management level. This implementation methodology has been set up to be as general as possible, but in practice it may be the case that some points mentioned in this implementation methodology are not really applicable for a certain project team.

To use the implementation methodology it is recommended to start with the points that have been mentioned in the guidelines section. Once the general picture is clear then the tools mentioned in the tools section should be present so that all information that is gathered can immediately be processed, modelled and used. Once these tools are ready to be used then the summarized points mentioned in the template should be followed one by one. Completing these steps increases the chances of success of the project and ensures that all four areas of the organisation have been covered systematically.

Once the project team has been setup, the recommendations given in the techniques section should be followed to ensure that the efficiency of the group is optimal and that the goals/targets are achieved.

It is very important that every new project (and existing project for that matter) is evaluated on a regular basis. The lessons learned from each project can be collected and stored in a central location so that it can be used for new projects. This implementation methodology may not be complete for all possible projects and is therefore good practice to modify this implementation methodology along the way by using the information from these evaluation sessions as input.

7.2 General recommendations

During this research several problem areas were encountered that affected the overall progress of the pilot teams. These problems were mainly due to the IT infrastructure and the way the processes were organized.

The main problem with the IT infrastructure is the Content Management System (CMS) that is being used by the sport pilot team, which is really outdated for the wishes and demands of the organisation today. This CMS should be updated or replaced by another system. The new system shouldn't consist of a server- and client-side part but should operate 100% online. This is an advantage because any employee of the organisation could access the CMS wherever they are by only using a laptop/mobile device with Internet connection. No software needs to be installed and no special configurations have to be made to publish content on the website and no license per workstation has to be acquired.

Related to this, the maintenance contract with Getronics limits the innovation and growth possibilities of the organisation. The extra security measures that have been taken slows all the systems down, makes it impossible to quickly modify the hosted applications and therefore decreases the level of productivity of the work force. New projects that require the IT infrastructure are also cancelled due to the limitations of the infrastructure. This decreases the number of revenue channels the organisation can benefit from.

Codifying all the information that is being exchanged between the team members and outside the team helps the organisation to learn from its mistakes and start new projects that from day one are more of a success than its predecessors. Codifying the information doesn't have to be very time consuming, there are many technological tools available that help people to plan projects, to collect information and to ensure that the targets and goals are achieved.

The effectiveness of the weekly meetings can also be improved by ensuring that all the ideas that are being exchanged are codified but also assigned to the people representing the departments involved. Assigning specific tasks helps the team members solve problems in a structured way and also ensures that the ideas being discussed are followed through. In many meetings it has been the case that a lot of ideas have been shared but the week after no ideas have actually been designed nor implemented.

7.3 General remarks

It is remarkable what has been achieved for the last 5-6 months (especially for the second pilot team). Looking at the first version of the printed product and the last it can be concluded that the positive change can clearly be seen: more references to the website are present, combination of text and advertisements is optimal and the general structure of the paper is well thought through.

After the second round of the action research, some improvements can be noticed to the second pilot team. Some improvements are:

- The team has become more organized by writing down the tasks assigned to people.
- These tasks are discussed in the weekly meetings to ensure that these tasks are carried out.
- Team members try to come up with new ideas to create new revenue.
- Communication between team members has improved significantly resulting in more tasks being done together.
- The quality of the printed product has improved dramatically making it an interesting product to read.

However, there are some areas in which improvement can still be achieved:

- Not enough time is spent on generating ideas for the website.
- New revenue opportunities are rarely discussed.
- Not enough tools are used to help organize the team and ensure that tasks are completed (on time).
- Actions that involve several departments (including departments not represented by the project teams) are usually not followed through because nobody within the team has the authorization to make these decisions.
- The IT infrastructure is a little outdated making it difficult to benefit from the latest multimedia technologies.
- The IT strategy is still non-existent, making it difficult to check whether or not the team is moving in the right direction.

It is impressive how a traditional organisation such as TC Tubantia is able to create a team such as the pilot teams mentioned in this research (especially the second one) in which multidisciplinary team members communicate with each other and together create a product that also very innovative within their organisation.

This implementation methodology contains many improvements that should be implemented in both pilot teams but also in the project teams to come. If the idea of creating new multidisciplinary teams is not taken a step further then TC Tubantia risks falling behind compared to their competition. The Internet and all

mobile facilities surrounding it are the future. TC Tubantia has to benefit from these opportunities as soon as possible and as much as possible.

It is very important that TC Tubantia is able to react quickly to changes in the market and to new technologies (for example a new service linked with Twitter.com or electronic readers). Creating these project teams improves the response of the organisation but they should also have the tools and possibilities to make certain decisions in a timely manner.

7.4 Conclusion & Discussion

The Rational Unified process has appeared to be a very useful framework for this research. Because of RUP a consequent and complete implementation methodology has been created that includes tools, guidelines, techniques and templates that can be used in practice within a setting such as TC Tubantia.

The alignment model has also been a useful model to use as a foundation for this research. It covers all essential areas of the organisation and has helped to identify the problem areas at TC Tubantia. The relations between the different areas described by the model have allowed us to examine whether or not these relations were also present in the organisation and between team members.

Due to the fact that the teams were cross-medial and multidisciplinary, the alignment was an ideal model to use because it covered all areas that had to be present for such a team to succeed. All observations and interviews have been done based on these four areas to ensure that all relevant information required for the research was collected.

This research is a good example in which theoretical information can be useful to help analyze a practical situation. The foundation of this research is based on a theoretical model and a theoretical framework. This made sure that all possible areas have been investigated and that the implementation methodology is as complete as possible based on the input of the practical research.

Reflecting on this research, it can be said that it has covered several interesting topics regarding multi-disciplinary and cross-medial teams. The idea may seem simple, but in reality creating such a team can be very difficult. It is important to find that balance between both media. Also different disciplines within the team should be able to communicate with each other properly.

It was very important that all the information obtained from the practical research was valid and usable for the implementation methodology. The principles of information validity have helped to achieve this ensuring that the implementation methodology solves the real problems that occur in real life.

Because of the lack of concrete goals, objectives and plans it is difficult to measure the success of the project team. There is basically no project management nor concrete strategies set by management and/or team members. The team members prefer to plan on a short-term basis. That is probably why the long-term is being forgotten.

Wegener/Tubantia have to deal with rules and agreements that have been set to ensure that the quality of the content is of a high standard. These rules include guidelines on how to print objective content without being influenced by commercial movements. This in some cases has resulted in conflicts of interests when designing/creating the printed product. At one moment of time the number of advertisements and the content was out of balance creating some tensions between the marketing department and the editorial staff. There were also a number of cases in which the positioning of the advertisements were not ideal

(the advertisement placed was slightly related to the article giving the readers the impression that the article was sponsored and thus not objective).

These examples are meant to show that many factors come into play when forming the team and creating the multi-disciplinary and cross-medial product. Because of this, it may be the case that some recommendations given in this implementation methodology cannot be (fully/partially) implemented as it is supposed to be implemented.

Hopefully the implementation methodology that has been created during this research will be used in practice. Any modifications or improvements to this model are more than welcome as many organisations and researchers can at the end benefit from such a methodology.

7.5 Further research

Having created this implementation methodology for cross-medial and multidisciplinary teams it would be interesting to know whether this implementation methodology is good enough to be used in practice. Therefore more research would have to be done by for example using this methodology during the creation of a new team at Tubantia. The implementation methodology may have to be improved in some areas to improve the chances of success of the team.

Taking this even further, it would be interesting to find out whether this implementation methodology can also be used in other organisations in which cross-medial and multidisciplinary teams are required. This may be businesses also operating in the news industry but even more challenging would be to find out whether this methodology can also be used in other types of organisations that are not related to the news industry.

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Appendix A

Real-life examples of frameworks in organisations

PRINCE2

PRINCE2 has been used at Getronics, one of world's leading providers of vendor independent solutions and services to professional users of Information and Communication Technology (ICT). Getronics helps many of the world's largest global and local organisations to maximise the value of their technology investment and improve interaction with their customers.

Getronics wanted to apply a common Project Management approach throughout the company for the benefit of their customers. Getronics finally decided to use PRINCE2 because it was a comprehensive and practical Project Management approach. It can also be easily adopted and mastered by employees and customers as it is based on well-known public domain elements.

SDLC

SDLC has been used at Vertex, the third largest provider of outsourced business services and technology solutions in the UK with particular expertise in customer management. Vertex used SDLC to deliver performance-testing consultancy on a new multi-utility work management system for one of its clients. The project involved the replacement of existing customer contact applications and the introduction of a new business application, which needed to be integrated with legacy systems.

SDLC helped identify and remove serious performance issues with the client system. This information enabled system administrators to make and validate tuning decisions prior to deployment using realistic data volumes to identify any processing bottlenecks.

RUP

The Rational Unified Process has been used at Philips Medical Systems, a division of Royal Philips Electronics, a leading supplier of diagnostic imaging equipment, information technology and related healthcare services. At Philips Medical Systems, the Healthcare IT development team has been delivering quality software for years. But in the past, the team's ability to react quickly to changing demands was hampered by difficulties inherent in geographically distributed development and a waterfall development methodology – in which each phase of development is carried out sequentially.

Philips Medical Systems Healthcare IT embarked on an enterprise-wide initiative to address these challenges by adopting an iterative development approach and other best practices of the RUP. The Product Development Director at Philips explains that "adopting the integrated RUP approach has helped them to increase the pace of improvement in their product creation process. It is also helping them achieve their goal of reducing lead-times of new releases from up to 15 months to 6-9 months".

Appendix B

Five investment opportunities

Business Improvement

These are the engineering initiatives to help organisations to streamline their processes and save substantial amounts of money by eliminating unnecessary or duplicate activities or empowering customers/suppliers to self-manage transactions with a company. Weill and Aral (2006) refer to such investments as transactional investments. The IT investment in these initiatives is the easiest to agree on because they focus on relatively low risk investments with a tangible short to medium term payback.

Business-enabling

The investment in business enabling initiatives can be considered informational investments (Weill & Aral, 2006). The business enabling IT initiatives extend or transform how a company does business. As a result, they are more focused on the increase in revenue of a company. Often, the return on these types of investments is less clear and as a result, it has been harder to get them on the IT priority list. Yet, many of these initiatives represent the foundations on which future business strategy is built.

Business opportunities

These are small scale, experimental initiatives designed to test the viability of new and emerging IT to support business. Given the rate at which IT evolves, it often makes currently available IT outdated, thus experimenting with new IT is extremely critical (Cegielski, Reithel & Rebman, 2005). In the past, these types of investments have not received funding by traditional methods because of the high risks. These days, there is a greater recognition of the potential value of strategic experiments in helping companies to learn about and prepare for the future.

Opportunity leverage

A neglected, but important type of IT investment is one that operationalizes, scales up, or leverages successful strategic experiments or prototypes. Coming up with new strategic or technological idea needs a different set of skills than is required to take full advantage of it in the market (Charitou & Markides, 2003).

Infrastructure

This final type of IT investment is one that often falls between the cracks when IT and business strategies are developed. However, it is clear that the hardware, software, middleware, communications and data available will affect an organisation's capacity to build new capabilities and respond to change. A recent study found that most companies feel their legacy infrastructure can be an impediment to what they want to do (Prahalad & Krishnan, 2002). Research also shows that leading companies have a framework for making targeted investments in their IT infrastructure that will further their overall strategic direction (Weill, Subramani & Broadbent, 2002). Unfortunately, investing in infrastructure is rarely seen as strategic.

Appendix C

Combined template with conclusions of both teams

Business/marketing strategy

- Find long-term advertisers/sponsors to cover the fixed costs.
- Find advertisers that match the content of the paper and/or the readers.
- Lower the barriers between the commercial/marketing department and the editor.
- Offer a complete advertising package for website and print.
- When approaching potential partners, indicate the idea of using the newspaper as a communication channel.
- Offer new services that are worth paying for by visitors of the website to generate new revenue streams.
- Attract new advertisers to the website by promoting the website on the Internet by using links, affiliates and Search Engine Optimisation (SEO).
- Carry out market research to calculate the risks involved and find out whether the project has chances of being a (financial) success.

Organisational infrastructure and processes

- Control the content of the website without interference of other departments. Especially if content has to be published immediately.
- Ensure people within the team come from different departments so that new ideas can be discussed and introduced.
- Appoint a leader who ensures that all agreed tasks are completed (in time).
- Reserve/allocate capacity (resources and people) to run the website.
- Reserve/allocate capacity (resources and people) to create the printed edition.
- Organize meetings every x weeks to discuss print and website.
- Ensure everyone is able to publish content on the website and print (training).
- Ensure everyone is aware of his or her tasks by explaining this at the beginning of the project.
- Assign specific tasks to team members to ensure that these are accomplished.
- Ensure there is enough motivation among team members by appraising their work and informing them of what they have achieved (page views, increase in revenue, etc.).
- Form the group as soon as possible to generate ideas and to prevent last minute activities.
- Regularly evaluate the progress of the project and also follow-up on the tasks that have to be done.

IT strategy

- Agree on different targets regarding the website (not only in terms of page views / visits).
- Publish a lot of new content on the website on a regular basis to attract more returning visitors.
- Find ways in generating more revenue through advertising and new services.
- Ensure that the text published on the website is Search Engine Optimized.
- Create a community feeling by adding some interaction to print and website (for example readers being able to upload images, leave some comments, etc).
- Make a realistic financial picture of the setup using input from the team members.

- Ensure employees have had proper training to work with website/software.
- Stimulate employees to use as much multimedia as possible to enhance the website and printed product.
- Once the website is launched stimulate visitors to contribute to the community.
- Continuously reference the website and print in both media to promote both products.
- Make a series of milestones for the launch of the website.
- When possible, use existing technologies/systems to start a new project.
- Reserve time to implement and test the website before the kick-off.

IT infrastructure and processes

- Make sure the CMS is adequate enough to be able to quickly post/upload information to the website.
- Ensure there are means to share information/media via the intranet/Internet.
- Ensure the IT infrastructure is good enough to support team members in their daily tasks, such as multimedia manipulation.
- Give offsite employees fast enough Internet connection to do the job.
- Ensure systems are capable of processing large amounts of data in as little time as possible to overcome delays.
- Ensure the website being developed has sufficient tools to create content that follows the SEO rules, generating more search engine traffic.
- Ensure there is a knowledge base present before starting a new project so that ideas and information can be shared from the beginning.
- Facilitate any form of electronic (visual) communication methods so that team members can communicate with each other more efficiently.
- Upgrade the IT infrastructure so that employees can work efficiently and effectively with the latest techniques.
- Ensure there is a system present within the organisation that can be used for the new project. If such a system is not available acquire a system that matches the requirements.