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The Digital Workspace, in the financial sector

ABSTRACT

In the 'digital age', also known as the 'information age', social and technological developments take place at high speed. These developments greatly affect the functioning of businesses, in particular the manager's job responsibilities. In order to enable fast and good response to a hardly predictable future, the workspace of the manager will also have to be digitized. A Binck case.

As shown in the TNS NIPO[1] research 'Informatiewerkers', information workers spend 24% of their time each week obtaining and reading information and they also spend 22% of their time supplying information. An information worker is somebody who in daily life produces vast amounts of information and apart from that gets a lot of information supplied[2]. The manager is an information worker par excellence. The majority of his co-workers are often also information workers. It appears that these fellow workers spend most of their time on tasks that hardly provide immediate added value, such as searching for information, performing secretarial tasks and being in charge of administrative overhead. All this at the expense of the organisation's decisiveness. There is less time left over for customer contacts, for taking the right decisions and supplying quality. In order to offer a solution for these challenges, the information worker of today requires a totally different workspace and so does the manager. The information worker of today is often tied to one workplace in the office, where a pc or laptop is used. In his duties, the information worker all too often has to plough his way through a mountain of data in order to obtain the right information. His workspace offers few grown-up tools for helping him in this. However, the digital workspace is a coherent collection of information supplies and automated tools on a pc or other electronic device, which enables the information worker to perform his work more effectively, more efficiently and a lot more enjoyably[3]. With the aid of a digital workspace information can be created, enabling the information worker to switch between close and not so close types of collaboration depending on what the situation requires and is also able to coordinate the work dynamically. The major processes in which a digital workspace facilitates are: collaboration, personal information management and the work itself[4]. These processes reflect the combined activities of co-workers for achieving collective goals in the development and exploitation of information products and digital services. In this way, the daily overhead information workers have to deal with is pushed back maximally, leaving them to concentrate on their key tasks. By implementing digital workspaces in an organisation, one for each information worker, very extensive productivity improvement can be achieved. So far, digital workspaces, often still called by the technical name 'portal', were approached from the technological viewpoint, which meant that hardly any real improvements in productivity were achieved. In order to realize this, the true needs of man and business have to be put first. Examples of 'portal' platforms are: IBM WebSphere (www.ibm.com/websphere) and Microsoft SharePoint (www.microsoft.com/sharepoint).

The developments of the digital workspace and the technologies required for these run parallel to the

developments of the information workers themselves. Through the digital workspace the demands, the behaviour and certain choices in work will change. The number of digital tools that, for instance, modern students have at their disposal have compared to ten or twenty years ago has increased significantly[5]. An electronic teaching environment for students is an example of a digital workspace. Up until now, such environments are not orderly, user-unfriendly and these are usually not offered tailor-made. Besides, data is stored in several locations, it is unclear whether the information is reliable and up-to-date and the student has little influence on what is on offer[6]. Students want to be offered relevant information or functions in an orderly fashion, whereby there is no need to constantly search various different systems. A student needs to be sure that the information on offer is the only, unique and most current information. A student only wants to be offered information and facilities that are relevant. The student needs to be able to influence this.
For realising these requirements and for making the digital workspace contribute successfully to providing productivity improvement, requires an architecture approach. The workspace architect, say the interior designer of the world of IT, creates the digital workspace for the different internal and external roles of the organisation.

The manager in the digital age

The old way of working and communicating is replaced in the industrial age by more team-based activities, supplemented with digital communication channels between businesses and individuals. Decision-making is increasingly delegated to the members of staff on the work floor and management roles are transformed into 'facilitation' and 'resource management'[7]. The necessity for physical presence in connection with mutual associations in and between modern businesses, both through formal as well as informal networks, strongly decreases.

The manager deals with three core tasks:

1. *Direct supervision*
Through direct supervision top managers (but also middle line managers) influence the coordination mechanism of the organisation. Apart from through management this is also achieved by ensuring that the right information is made available to co-workers. After all, correct information influences desired behaviour.

2. *Management of the functioning of the organisation in connection with the ecosystem*
An ecosystem is the network of values in which the organisation is located. That network of values is the arena for competition or collaboration between the players within that network of values. Managers spend a large portion of their time informing people within the ecosystem on the products, services and activities of the organisation, so as to enable high level contacts and negotiations.

3. *Contributing to the development of the organisation's strategy*
The manager contributes to the interpretation of the organisation's position within the ecosystem. From that, a strategy is formulated, which is used for outlining a path towards the future. Strategy ensures that organisational decisions become clearer, which supports the manager in the performance of his duties.

Apart from the three general core tasks, managers in the digital age have to make an effort for constant innovation, so that new ideas arise and the organisation is able to cope with fast changes[8]. An organisation will acquire an innovative basic attitude, based upon the available competencies, competitive situations and the preferences of the management[9]. The digital age incites managers to quickly try out new lines of approach, to share successes and failures and to monitor all that is new and useful for the organisation[10]. In the digital age the manager has, thanks to IT, the possibilities to collate, use and share information efficiently. Managers willing to experiment with new products and services position themselves most competitively[11].

Professional Activity Cycle

The e-office Professional Activity Cycle[12] (www.e-office.com) includes five phases: collate, consult, decide, act and 'check', see figure 1. For making good, well-considered decisions, it is important that

the manager collates input from different sources, structured information and non-structured information. Structured information for instance, consists of figures and customer data. Examples of non-structured information are: e-mails, documents and Internet services. If the manager wishes access to certain expertise, other colleagues often prove to be the key sources. In the Professional Activity Cycle this is the consultation phase. Based upon the collated data, including data resulting from consultation, the decision is finally reached.
As soon as the manager has made the decision, this needs to be turned into action, often in the shape of a project. In this case, the digital workspace also has to help the user by offering suitable support. Means that could be supplied include: an electronic diary for planning a kick-off for a project, a virtual environment for sharing information concerning the project, a coordination mechanism for supporting the activities for the project team members and finishing the project on time and a content management tool for the communication on the project via intranet. As soon as an action has been performed, managers should be able to simply check whether the action had the desired result. Therefore, a check has to take place. Results from the check may also be included in other future activities.

The digital workspace as a solution

Rijsenbrij[13] considers a business to be an internal ecosystem of business domains, whereby the various business domains provide services to each other and to (external) customers. Rather than speaking of business processes he sees a business domain as a collection of services it supplies to the environment. These services become available to the employees of the business in their digital workspace, as shown schematically in figure 2.

Main domains are usual operations, delivery, marketing & sales and purchasing. Supporting domains are human resources, information, organisation, finances, logistics and accommodation. Table 1 shows a summary of the domains at Binck N.V. (www.binck.com) in accordance with the five categories as mentioned by Rijsenbrij[13].

A digital workspace is therefore a virtual environment, irrespective of the physical location, which can be worked in and where the employee can develop his talents maximally. In a digital space integrated business services, information services and application services are offered to the user. The 'personal web', as introduced by Rijsenbrij[13] attunes to this. This is a digital space that can be approached worldwide as a type of virtual replacement of the

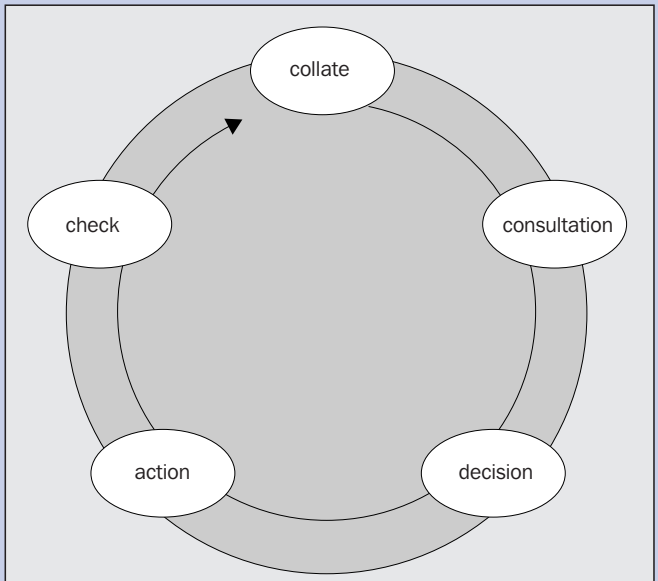

Figure 1. Professional Activity Cycle

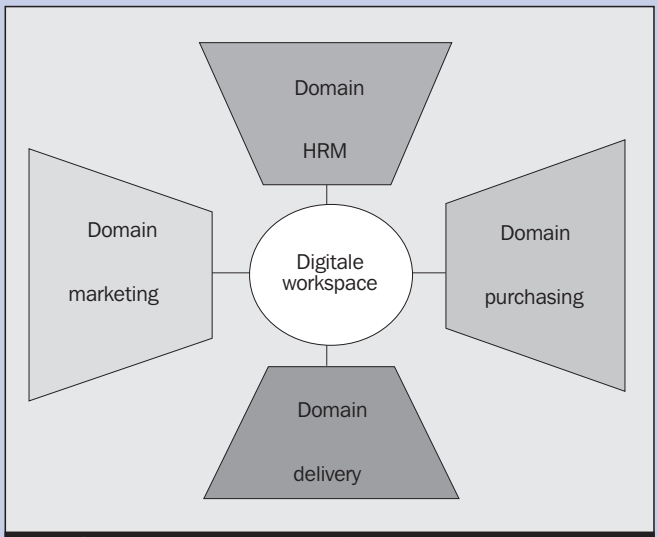

Figure 2. schematic representation of a digital workspace for a sales assistant

main domains	*communication spaces*
– retail	– information desk
– wholesale	
– brokerage	*supporting domains*
	– secretariat
corperate knowledge	– HRM
– internal training	– finance & control
	– IT affairs
overall domain	– purchasing/suppliers contacts
– risk management	– relation management
– control	– communication/PR
	– legal affairs

Table 1. Binck N.V. domains

personal computer. The personal web is the cluster of information, knowledge and digital services that someone needs as personal baggage for being able to function as a global citizen.
The digital workspace can offer access to a variety of domains[14]. Users have correct information, applications and digital services at their disposal, which are also made to measure for that specific user. The website of certain financial institutions for Internet banking may also be considered as a very premature initiative for a workspace, in which a customer can deal with his financial affairs. However, with regard to functionality as well as user-friendliness, architects still have a lot to improve in this field[15].

Main qualities of a digital workspace

Below the three major qualities of a digital workspace[4].

1. *The digital workspace ensures a maximum digital support of the activities of the information worker.*

IT is used in the digital workspace in a coherent way with the objective to remove as much overhead as possible from the daily activities and for supporting the information worker maximally in his core tasks. The digital workspace is necessary for performing the daily duties well. It is a reminder for the information worker that tells him with what and with whom he is dealing.

2. *The digital workspace ensures maximum visibility of the information worker.*

At the start of the industrial age, eye contact was essential for the functioning of the business. As business became increasingly large, this was replaced by an often obscure and unworkable conference culture. By means of the digital workspace the information worker is, often real-time, in contact with like-minded souls, discussion groups and project teams, all of which he integrates in his daily duties. That makes the information worker 'visible' to the others in the business, namely: the customers, the business partners but most certainly also his manager.

3. *A good digital workspace guarantees optimal independence to the information worker with regard to the existing organisation structure.*

An architect-conceived digital workspace is wherever possible independent of organizational elements. In a time in which a large degree of adjustment is demanded of businesses, it is necessary to strive for the ability to reconfigure its structure without having to entirely redesign and reconstruct all workspaces. The architecture of the digital workspace includes principles that forbid implementation of specific business processes and organizational differentiation.

Advantages of a digital workspace

A digital workspace offers many advantages[4]:

- Indispensable information, knowledge and expertise for performing duties are available at the click of a mouse.
- Regularly recurring work processes are optimally supported through collating, combining and filtering of (non) structured information.
- The co-ordination problems are minimised within tasks to be carried out. The digital workspace provides the user with appropriate advice and assists in setting priorities concerning the tasks to be carried out.
- 'Secretarial' and administrative overhead is minimised.
- No trouble with paper flows and needless manual interventions, unless digital services are inadequate.
- Work can be carried out at every imaginable conceptual working location, which means one can be optimally reached by others. Furthermore, this prevents the unnecessary 'lugging' of hardware.
- By means of community building one is in close contact with like-minded spirits for exchanging information, knowledge and expertise. Community building is the collective term for all digital

means for getting real-time in touch with like-minded people, discussion groups and project teams.
- Using the digital workspace is a matter of optimal self-service.

Using the digital workspace makes the actual physical search for information, knowledge and expertise superfluous, unless the information worker, for whatever reason, feels the need to do so. Finding and searching box files and reports, going through letters and visiting colleagues is no longer a requirement because of the digital workspace. Organising and planning of meetings and conferences is computerized as far as possible by means of the digital workspace. Today's manager has to work predominantly with laptops and desktops, which means that his mobility is actually still limited. The digital workspace is on call everywhere, possibly on mobile devices so the manager has to lug around hardware as little as possible. The BlackBerry (www.blackberry.com) is an example of a handy mobile device.

A real-life example: Binck N.V.

A real-life example of the necessity of a digital workspace is to be found at the Chief Commercial Officer (CCO) of Binck N.V. The CCO determines the target group to which the product or service has to be sold, brings in customers, works at customer relations and maximises the proceeds from customers.

Background

Binck N.V. provides investors in a cost-effective and high-quality way entirely computerized access to international stock exchanges. Permanent development and optimum utilisation of the infrastructure enable Binck N.V. to supply a product at competitive rates. Binck N.V. evolved from the merger of Amsterdam Option Traders (AOT) and BinckBank (www.binck.nl) in May 2004. AOT was established in 1980 as an international business firm specialized in the trade in stocks and derivatives. A successful period at the start of the eighties was followed in 1985 by a stock market quotation at the predecessor of the current Euronext Amsterdam. The nineties were mainly characterized by international expansion. Apart from the main office in Amsterdam, AOT opened various offices abroad. In 2000, AOT as co-financier was present at the birth of BinckBank.

BinckBank started in May 2000 by providing services to institutional investors. BinckBank at the time carried out derivative orders for German, British and French banks. On the 6 October 2000, BinckBank launched its website for private investors. BinckBank's objective is to offer investors the same trade opportunities as a professional investor at, by Dutch standards, low rates. The past few years, many investors that previously invested with large banks, switched. Now, almost four years after the start, over 20,000 investors invest through BinckBank.

Strategy

The strategy employed by Binck N.V. is shown in figure 3 by means of the Kaplan en Norton[16] strategy map. This representation shows how Binck N.V. as an organisation creates value from four perspectives, namely: the financial perspective, the customer perspective, the internal processes and learning and growth. These perspectives originate from the Kaplan en Norton[17] Balanced Scorecard theory. This helps to outline the context of the CCO's activities.

Financial perspective

Binck N.V. being a business quoted on the stock exchange, strives to offer its investors an excellent yield. The share price and its development are influenced by three financial outcomes:

1. By pursuing a very efficient cost structure, Binck N.V. ensures it can offer transactions at the lowest price at all times compared to the competition.
2. Everything is aimed at keeping hold of customers as long as possible. The customer value (yield per customer) is thus systematically increased.
3. Because of these loyal customers and its own sales efforts Binck N.V. pursues ambitious sales increase objectives.

Customer perspective and customer process

The strategy of Binck N.V. is aimed at inducing the

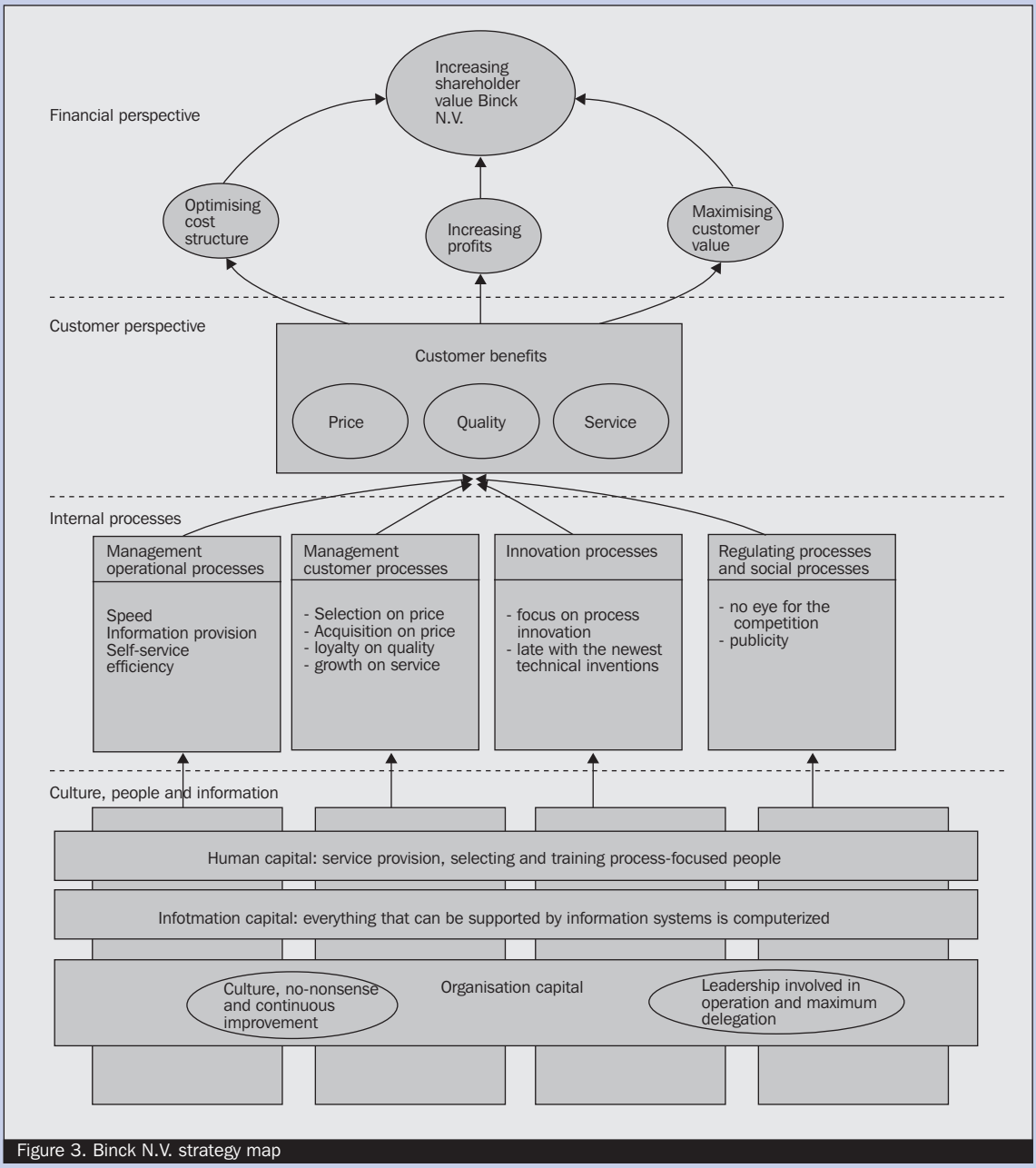

Figure 3. Binck N.V. strategy map

customer to become a Binck N.V. ambassador as soon as possible. To this purpose, Binck N.V. distinguishes three phases: the a-loyal phase, the loyal phase and the ambassadors phase. Three specifically selected customers perspectives are instrumental in this process.

1. price

A customer usually selects Binck N.V. because they 'always offer the lowest price'. There are extensive campaigns aimed at positioning Binck N.V. as the cheapest option for investment through the Internet. These for example compare the rates of other banks to Binck's rates.

2. quality
The customers that enter purely on price are in principle a-loyal. As soon as another provider offers a lower price, they will choose the other provider. By consciously providing more quality with regard to services, Binck N.V. ensures that customers are from the start 'pleasantly surprised'. That way, the customer expects at a low price still the same level of service as offered by the competition. Because it is in the Binck N.V. market already common to offer customer through Internet real-time quotations, Binck N.V. is sure to continuously go one step further than expected. For example by, in this case real-time, offering *streaming* quotations. This way, customers keep getting impressed and will continue to invest through Binck N.V.

3. service
Next, customers are impressed with an excellent service. Through a combination of pro-active communication, facilitated by systems but supported by direct contact with members of staff, the customer is time and again impressed. For example, after three months every customer receives an e-mail asking whether he is happy with the services provided and whether there are any suggestions for improvement. A customer who indicates that he is not satisfied, will be telephoned personally within half an hour by someone at the service desk. A problem, once observed, is solved as soon as possible. Even the CCO, member of the board of directors, spends almost half of his time in direct contact with customers. This proactive service, supported by personal communication, does surprise customers. This is communicated by word of mouth, which develops the customer into a Binck N.V. ambassador.

The underlying processes, of which the customer process was already described above, provide these three crucial customer experiences in the strategy of Binck N.V.

1. operational processes
The transactions concerning stock orders are entirely computerized. Moreover, every problem in the interaction with customers or in the transaction is marked as a candidate for computerization. By continuously using this strategy, Binck N.V. is able to perform the operational processes very cheaply. That enables them always to ask the lowest price for a transaction.
By also providing customers with user-friendly tools and good information, an optimal service is pursued. Apart from this, Binck N.V. is keen to offer the same speed of transaction to both private persons as well as professional investors.

2. innovation
Process innovation, whereby primary or supporting processes are redesigned for realizing performance improvements, is a very important control tool at Binck N.V. There is continuous reflection on how technology, processes or behaviour may result in the work running more efficiently and qualitatively better. Every complaint or error is utilized as a change for improvement of the service. On the other hand, when it comes to product innovations, Binck N.V. knowingly plays a waiting game. In that case, Binck N.V. rather sees the competition try and test the latest novelties but will, as soon as a 'platform' for a new application or service is created, quickly jump on the bandwagon.

3. environment
In its environment, Binck N.V. mainly deals with regulation. The process for complying with the rules as laid down by De Nederlandsche Bank and the Autoriteit Financiële Markten are time-consuming and take up a lot of the top management's attention. However, Binck N.V. does not employ these efforts to consciously influence the customer's perspective.

Culture, people and information

Through its high degree of computerization, Binck N.V. thrives to generate a culture aimed at predictability and result. Binck N.V. staff members are obliged to work in compliance with exemplary manuals and standardized processes. They are service-focused employees, willing to work within an 'oiled machine'. Information is very important in the strategy of Binck N.V. That ensures that Binck N.V. can pursue a combined cost leadership and differentiation strategy.

The digital workspace at Binck N.V.

The digital workspace at Binck N.V. creates the following specific advantages for the CCO:

1. The CCO is able to see which customer is in which one of the three customer phases.
2. The rates of the competing banks are clear, enabling a response.
3. The customer value (yield per customer) is shown to the CCO in one single summary.
4. The problems that are current with customers are clear and also whether these have been solved yet.
5. The digital workspace provides tips and hints for solving frequently arising customer questions and problems.
6. Suggestions made by customers for solving problems are collated by the digital workspace and shown in one single summary.
7. The digital workspace advises the CCO which customer problems are candidates for computerization.
8. An overview is available of all the indicated reasons, which induce private investors to either choose BinckBank or the competition.
9. The CCO is able to contact colleagues, acquaintances and customers real-time in community environments.
10. The digital workspace collates relevant news items from inside and outside the organisation for the CCO.
11. Customer satisfaction is made clear by using a dashboard, on which real-time streaming customer data is shown.

One of the parts of the digital workspace is the dashboard. A dashboard is a tool, which enables managers to monitor the status of projects and programmes in an organisation[4]. Because acquisition and customer relations are part of the range of duties of the CCO of Binck N.V., there is a dashboard for the CCO for showing real-time streaming customer-related data, see figure 4[18].

At any given time, the CCO can have a look at his dashboard to see what the state of affairs is regarding customer data. If he notices, for example, that too little is done about the number of complaints that haven't been dealt with; he is able to act on this immediately. That means he no longer actively has to go looking for all sorts of information spread across the organisation in order to find out how many customer complaints have not been dealt with in total.
The dashboard is accessible both from the pc, the laptop as well as a mobile device. That way, the CCO has access to the customer data from every possible work location. Figure 5 shows as an example the dashboard on a BlackBerry.

For supporting the CCO in minimising the coordination problem in tasks to be carried out, he is right

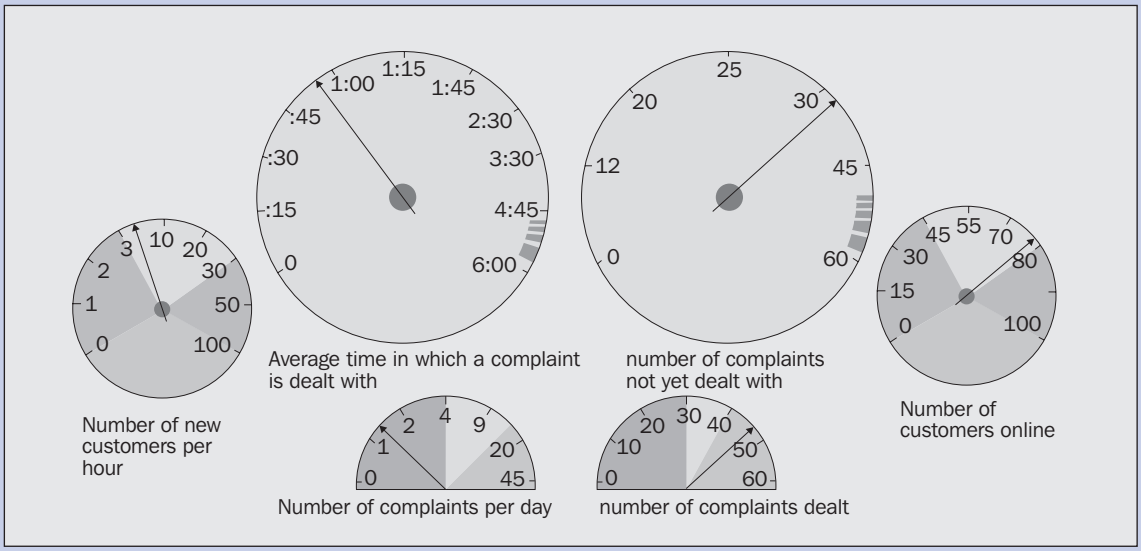

Figure 4. dashboard with customer data

Figure 5. dashboard on a mobile device: the BlackBerry

from the start guided through a task. As soon as the CCO starts a new task, the digital workspace ensures this task is linked to other tasks. These are tasks that were started by colleagues or tasks the CCO has not tied up yet. This is necessary for indicating which co-workers are related to the context of the task. Besides, the priority of the task is set. For the CCO of Binck N.V. this process could look as follows:

The CCO starts a task 'chair a session with the Chief Financial Officer (CFO) and the Chief Executive Officer (CEO)'. This session is a monthly recurring session in which the CCO exchanges information on the current state of affairs with the CFO and the CEO. Intelligent software in the digital workspace ensures that the session is automatically planned for in the diaries of all those involved. Before the start of the session, all those involved will get a signal on the screen of the device they are using at that particular moment. This shows the party involved where the session will take place. Should one of the board member be unable to attend in person, and then it is possible to start up a conference call. Next, all those involved are automatically called, should anyone choose this option because everybody's phone numbers are known to the digital workspace. The digital workspaces supply the managers with relevant information so as to be able to start the meeting well prepared. This information is collated with the objective to optimally share knowledge amongst the managers. E-mails and digital reports of a board member, which are important to the CCO's work and as yet not known in the CCO's digital workspace are collated and put out by the digital workspace well in time for the session.
During the session, all those present can keep a record of what has already been discussed and what still needs to be discussed. The digital workspace supplies those invited beforehand of an automatically generated agenda, which should there be any need to do so, can be made more specific. Digital documents, e-mails and websites linked to the session can if necessary, be called up and shown on the screen of a convenient device, such as the BlackBerry.

Specific affairs at Binck N.V.

Research was carried out into the architectural principles for a digital workspace of a top manager at Binck N.V.[4] In order to make the developing process of a digital workspace run orderly and clearly, an architectural approach is required.

Digital architecture is a coherent, consistent collection of principles, differentiated according to 'concerns', rules, guidelines and standards, which described how a business, the provision of information, the applications and the infrastructure are designed and act in use[13]. Each design of the business or its support using IT means starts with a collection of architectural principles, which, so to speak, demarcate the design space. This makes architecture an aid for simplifying and uniformizing design decisions[15].

An example of an architectural principle for the digital workspace is 'just-in-time availability of necessary information, knowledge and expertise at the click of a mouse'. This includes a large number of rules, guidelines and standards for concretising that principle. A standard that has already been introduced at Binck N.V. is Multimedia Messaging Service (MMS), for sending short video clips, sound samples and bits of text using mobile devices.

Observation at Binck N.V. teaches that the manager considers types of communication in writing frustrating, except in the shape of management summaries, PowerPoint presentations, free format visualizations in the manager's language and 'bottom line' statements. On the other hand, vocal communication, supported by telephony, has preference. The digital workspace should therefore, certainly as far as the manager is concerned, include very many communication tools that fit in with fast, vocal or not, communication.

Apart from the principles applicable to all digital workspaces, extra principles have been drawn up for the manager's digital workspace[4]. For supporting the communication during his activities, the architecture for the digital workspace includes the manager specific principle 'maximization of report tools for concise statistic management reports'[4]. By using this principle, the manager's digital workspace includes all the necessary means for supporting him maximally in drawing up concise reports. This principle goes with the rules 'exclusively real-time access to a visual presentation of the Key Performance Indicators' and 'exclusively dashboards and scorecards for the visual representation of KPI's. Through implementing these rules the manager can operate real-time on KPI's because he can see these at a single glance in his digital workspace. Just like a car dashboard shows the 'state' of the car real-time to the driver, a dashboard for KPI's real-time reveals the state of the organisation to the manager.

Figure 6 shows that it is possible to gain simultaneous access to several domains. In the case of the manager at Binck N.V., access can be obtained to the shown domains 'retail', 'wholesale' and 'brokerage'. These are the main domains of Binck N.V. and provide services concerning the stocks and derivatives trade. The domain Human Resource Management (HRM) is an example of a supporting domain and the domain 'information desk' is an example of a communication room within Binck N.V. There are three levels with regard to usage of the surrounding domains.

1. loose information
Through the digital workspace, loose information can be retrieved from a domain, irrespective of the process or task the manager is dealing with at that particular moment.

2. information for the benefit of a process
The digital workspace can ensure that the manager can get more 'tailor-made' information from a domain, linked to the process that the manager is dealing with at that particular moment.

3. information for the benefit of a task
The digital workspace is also able to obtain information from the domains for the benefit of support at a task in question. This way, the digital workspace is optimally made to measure to the specific requirements of the manager.

Points of particular interest at the realization of a digital workspace
At the realization of a digital workspace, it is important to pay attention to a number of points that are crucial when setting up, using and maintaining the digital workspace[19].

- *profits*

It is important to make explicit what the profits will be in case a digital workspace is set up. Profits are broken down into IT cost savings, business efficiency advantages and strategic advantages.
Possibly imaginable profits consist of improved productivity of the end user, satisfaction regarding application usage, making better decisions and faster product development.

- *costs*

The outline of costs is a point of interest for wanting to set up a digital workspace. At the moment, many components of digital workspaces are still expensive. The acceptance of the concept should not be hindered on the grounds of price.

- *discourage decrease of innovative behaviour*

Innovative behaviour may decrease through use of digital workspaces that the offer of content, human resources and services tailor to a specific role of a user. This is a major deficiency that lies in wait in many IT applications. However, stimulating interaction with third parties within the digital workspace contributes to the exchange of views and intellectual enrichment.

- *full development of the functionality of a digital workspace*

The digital workspace has to be set up such that it

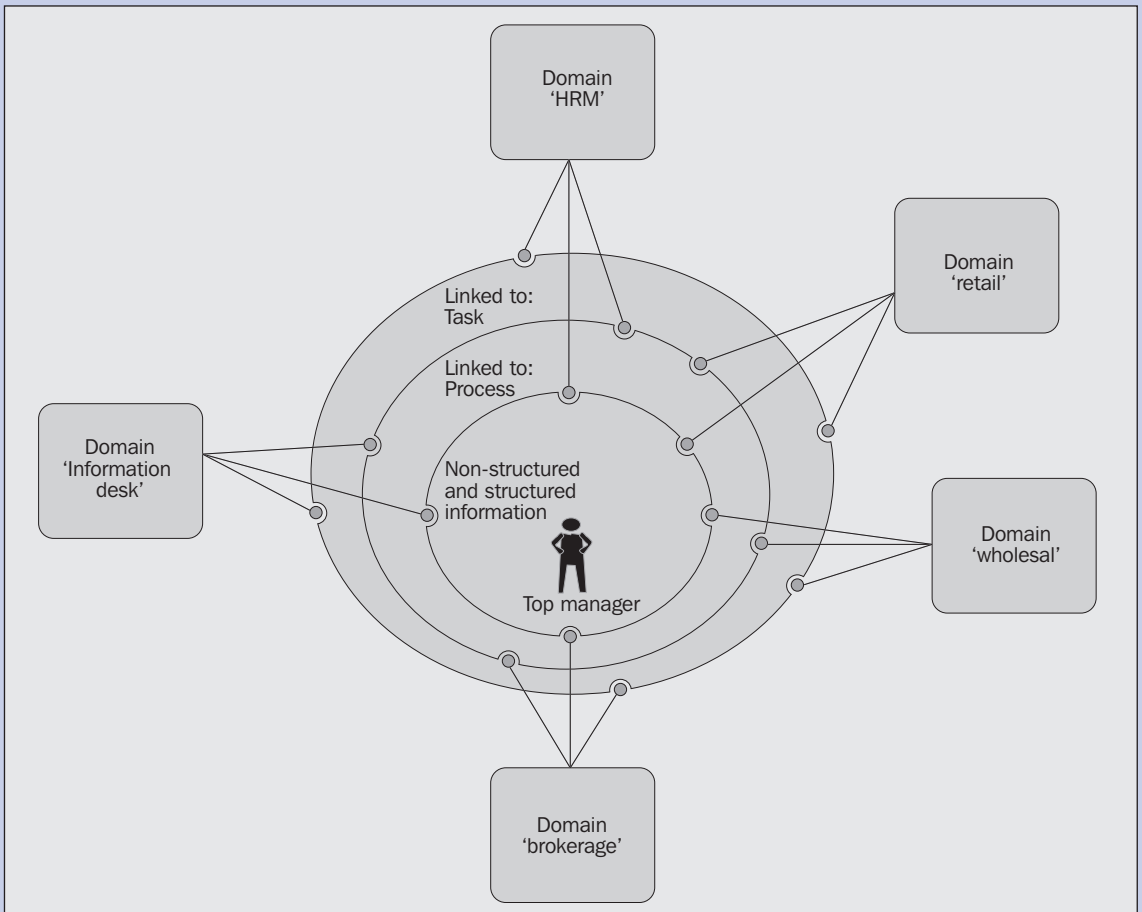

Figure 6. access to the domains from three possible requirements

can indeed adjust to changing conditions and user's contexts, rather than the user adjusting to the predefined 'system'. A correctly set up working environment entices the information worker to development and growth in the exercise of his profession. It functions as a catalyst for professional enthusiasm[13].

- *Optimum protection against improper use of the business' information sources and applications*

The digital world becomes rapidly more complex; it becomes increasingly more difficult to guarantee adequate security. The maze of already existing applications is stifling[20]. For that reason, security is most certainly an integral part of the digital workspace.

- *minimal system management from the business*

In order to guarantee optimum self-service, minimal system management from the business is a requirement. Exclusive use of basis registrations, whereby data is only stored once as close to the source as possible, contributes to minimal system management from the business. Utilizing standard packages (standard software developed for specific business processes) also achieves efficiency benefits. Besides, standards have to be integrated in the digital workspace, in order to prevent software proliferation and uncontrollability.

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