

## **Business Analytics – From Chosen Few to Common World View**

***How organizations can benefit from  
Business Analytics  
to make them more aware and flexible  
by utilizing the potential of all individuals***

**By Morten Middelfart**

### **Target Audience**

The target audience for this article is managers and individuals concerned with the latest development in Computer Aided Leadership and Management.

### **Purpose of this Article**

The purpose of this article is to investigate the potential for organizations in using Business Analytics tools in combination with the systems they have today.

## Executive Summary

In this paper we will investigate the specific discipline of supporting managers and leaders throughout an organization. In this context there are two major trends to consider: First, organizations need to act and react more quickly on different issues as a consequence of global competition, regional instability and vulnerability are faced with a business environment of rapid and disruptive change, fleeting opportunities, incomplete information and an overall sense of uncertainty and disorder<sup>1</sup>. Second, the individuals that add up to an organization are seeking more empowerment and involvement, therefore the number of managers has increased as a percentage of the organization<sup>2</sup>, and although these individuals might not be managers in a classical sense, they are still becoming more and more dependent on information to support their decisions.

Traditionally this kind of empowerment has only been available to a “Chosen Few”, and most often the system has been somewhat manual. The reason for this appears to be that the strength of the ERP systems and the spreadsheet is the actual manipulation and storing of data, whereas the strength of Business Analytics lies in creating a Common World View and allowing the users to access information freely that complies with this Common World View. This approach has the benefits of allowing the individuals in an organization a high degree of empowerment and initiative, yet ensuring that the decentralized initiatives are in line with the organization’s overall mission and strategy. An organization that succeeds in empowering its staff will have shorter cycles of observation, decision and action, and the various levels in the organization can react more quickly and more autonomously, yet in total accordance with the overall plan; “The Common World View”.

We found that on average the features relating to the business needs carry more weight than the deployment and management features. The need for a Common World View and the ability to focus actions are the top priorities.

It is noteworthy to bear in mind that the participants come from various types of businesses, yet they have the same preference for the important features as well as the system that supports these. This leads us to conclude that it is possible to deliver these benefits to all companies regardless of their line of business provided that the Business Analytics system allows the users to Meta Morph, e.g. modify the system to accommodate their individual needs.

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<sup>1</sup> Clemons and Santamaria, Harvard Business Review, April 2002 – See also section 6

<sup>2</sup> Florida, 2002, p. 44, 47 – See also section 6

Figure A – Average rating of feature importance based on Constant Sum distribution of 100 points for all participants. The individual features have been colored according to their category.

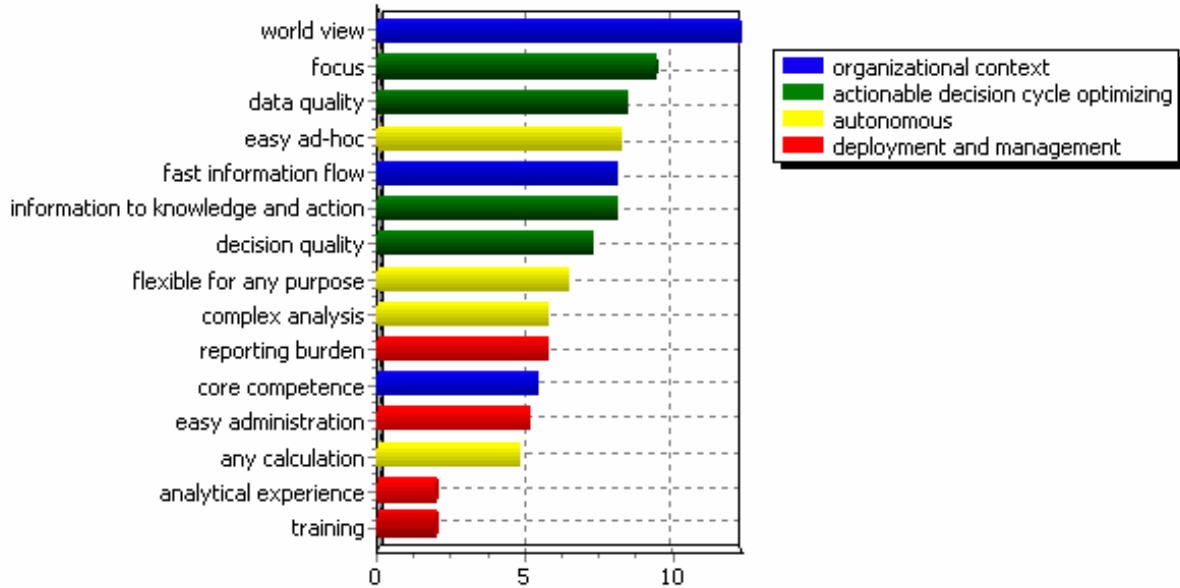
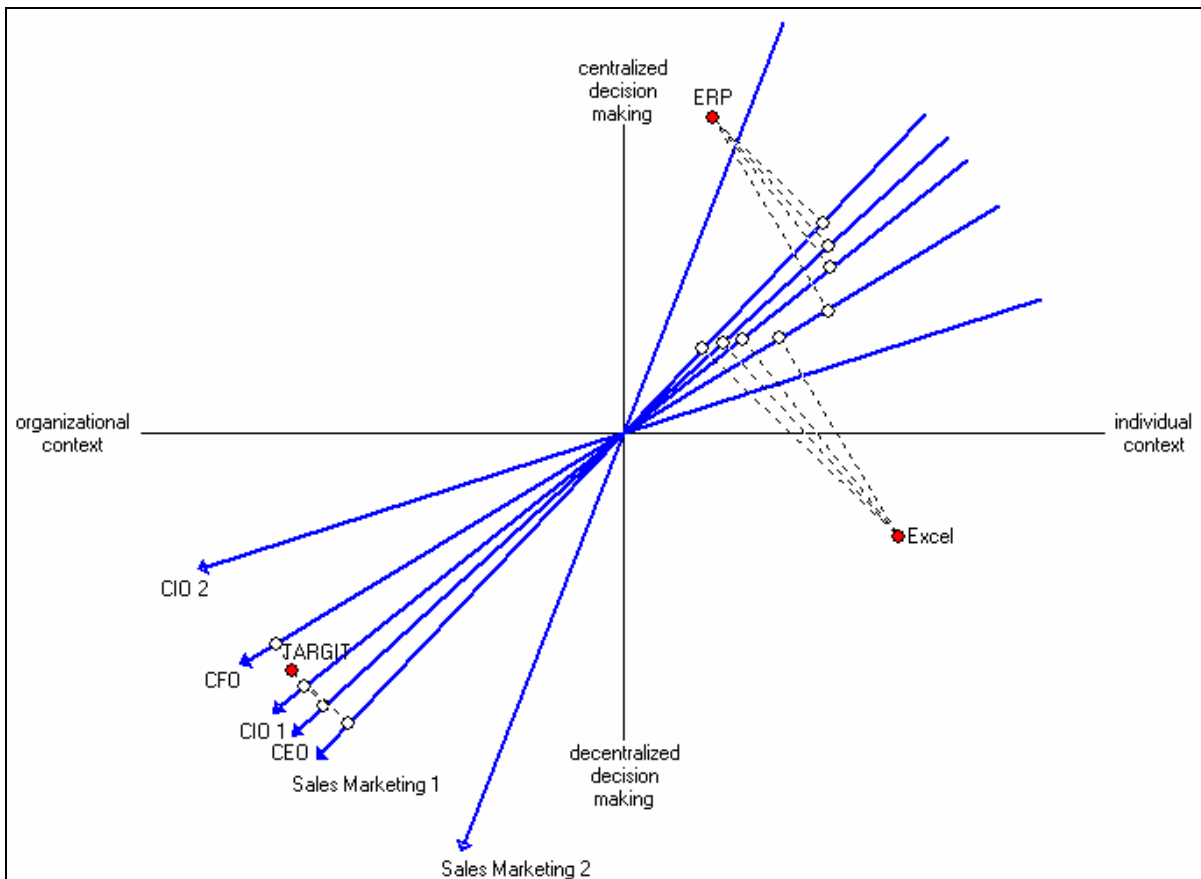


Figure B – Perceptual mapping for all participants based on average rating of top 10 important features. Projections have been made to the lines that represent the participants that in agreement.



With reference to Bill Gates we note that information has traditionally been for the chosen few managers<sup>3</sup>, but this paper suggests that there can be some significant benefits from Business Analytics in that it can make the organization more aware and flexible. Business Analytics facilitates the fast information flow of quality information to every employee and manager who needs it, which facilitates faster actionable decision cycles. Business Analytics also ensures that there is a Common World View that the increased number of actionable decisions comply with.

Based on this research we conclude the following:

- The participants' assessments of important issues are in line with the research results reported in the literature.
- The need for organizational context and actionable decision cycle optimization are forced upon organizations from the market environment in the competition for both customers and employees.
- Decentralized decisions in an organizational context can be facilitated by Meta Morphing which is a combination of allowing a Common World View to be brought into the context of the individual.
- The Business Analytics system investigated supported Meta Morphing and was perceived superior to the Spreadsheet and ERP systems in covering the features that the participants rated most important to their organizations; in particular the features positioned as facilitators of decentralized decisions in an organizational context.

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<sup>3</sup> Gates, 2000, p. 17

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## 1. Introduction

For several decades computers have been part of the business domain. In the early days, a centralized mainframe with a number of rigid terminals could be seen in the most progressive organizations; these systems handled trivial tasks of processing and storing data. Later, at the dawn of the PC era, the desktop computer added increased efficiency to the individual with office tools such as spreadsheets and word processing; the nature of these systems were anarchistic, and the only collaboration across desktops was the sharing of files. As the PC era evolved into the client/server and later internet era, more and more focus was put on the distribution of tasks; some processing instructions was held on the PC and some on the server. The nature of task distribution was an economy of scale approach, with the processing and storage tasks that provided most benefit to the organization being placed on the server.

In this paper we will investigate the specific discipline of supporting managers and leaders throughout an organization. In this context there are two major trends to consider: First, organizations Today need to act and react more quickly on different issues because they are faced, as a consequence of global competition, regional instability and vulnerability, with a business environment of rapid and disruptive change, fleeting opportunities, incomplete information and an overall sense of uncertainty and disorder<sup>4</sup>. Second, the individuals who collectively comprise an organization are seeking more empowerment and involvement, therefore the number of managers has increased as a percentage of the organization<sup>5</sup> and, although these individuals might not be managers in a classical sense, they are still becoming more and more dependent on information to support their decisions.

There are a number of benefits that an organization can gain by allowing more decentralized decision making based on better information, e.g.:

- Sales representatives who know the overall cost and planning impacts of a given offer can be more assertive.
- Production workers can focus on quality improvements and corrective action based on actual performance day to day.
- Financial staff will know when the exposure in a given number of incidents adds up to a high risk.
- Purchasing staff can rate and analyze vendor performance while negotiating.

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<sup>4</sup> Clemons and Santamaria, Harvard Business Review, April 2002 – See also section 6

<sup>5</sup> Florida, 2002, p. 44, 47 – See also section 6

The problem in supporting such processes is usually not the lack of data but a matter of actionable information not being available at the right time.

The tools that could aid organizations in these challenges are Business Analytics and Business Intelligence systems. Such systems aim to reduce the observation-decision-action cycles; to have more action taken more quickly and more often throughout the organization. The two types of systems differ in that Business Analytics is about allowing the individual manager and leader to have optimal conditions for making decisions, whereas Business Intelligence is about creating systems that autonomously complete an observation-decision-action cycle without human involvement<sup>6</sup>. A number of vendors in the market have made their own definitions, so the reader should note that this definition might vary for different vendors.

**Definition:**

Similarities	Differences
<ul style="list-style-type: none"> <li>- Improve observation-decision-action cycles in speed and quality</li> <li>- Usually based on a centralized database that is optimized for calculations based on multiple records</li> </ul>	<ul style="list-style-type: none"> <li>- Business Analytics present information to support users in making decisions</li> <li>- Business Intelligence systems make decisions based on predefined guidelines without user interference</li> </ul>

In both types of systems, the goal is to allow an organization to be more active and responsive while operating in its market environment. A metaphor of an organism that is alive and aware is commonly used, and the system that aids the transportation of the knowledge that leads to action has been named the digital nervous system<sup>7</sup>.

In this paper we investigate the desired features of a Business Analytics system, which, based on the research conducted, seems to be a composition that neither the existing Enterprise Resource Planning (ERP) systems nor the spreadsheets cover. The reason for this appears to be that the strength of the ERP systems and the spreadsheet is the actual manipulation and storing of data, whereas the strength of Business Analytics lies in creating a Common World View and allowing the users to access information freely that complies with this Common World View. This approach has the benefits of allowing the individuals in an organization a high

<sup>6</sup> Business Analytics and Intelligence defined by Microsoft Business Solutions and TARGIT

<sup>7</sup> Gates, 2000, p. 2 – See also section 6

degree of empowerment and initiative, yet ensuring that the decentralized initiatives are in line with the organization’s overall mission and strategy.

Specifically, in this paper we investigate Business Analytics systems where data is gathered in a centralized multi-dimensional database, and users access this data through an application which allows them to work easily with the data on different aggregated levels in order to uncover patterns and trends.

The systems investigated in this paper with associated findings:<sup>8</sup>

	Spreadsheet	ERP	Business Analytics
Vendor	Microsoft	Microsoft Business Solutions	TARGIT
Product	Excel	Axapta, Navision	Analysis
Strength	Provides a high degree of flexibility for all types of types of tasks	Supports operational procedures and stores data	Provides a Common World View and allows a high degree of productivity and flexibility with this
Weakness	The flexibility is not tied into an organizational context	Limited flexibility for analytical decision support	Will only allow flexibility within the Common World View

## 1.1 The idea and benefits of Meta Morphing

The goal of a Business Analytics application is to shorten the observation-decision-action cycle for any individual at any level in an organization, but human involvement is deemed necessary at the decision stage.

Since there are a number of individuals running a variety of tasks through these cycles throughout an organization, the ability to provide these users with a Business Analytics system that will meet their need becomes a challenge; especially since it is desired that the actionable information should be an organizational context meaning that all the smaller units of information should have quality and integrity so that everyone has the same world view.

This can be achieved by allowing all the users to model their own applications according to their needs through an interface that is easily understood. This process we will define as Meta morphing; which is the process where a user can both take predefined and analytical views or reports (morphs) and modify them to the user’s

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<sup>8</sup> See section 7 for details

need. Furthermore, the user can decide to create something from scratch. The Meta morphing is an abstraction from data since these are represented by terms, named Meta data; however another important issue of the Meta morphing process is the visual process, where the user creates the presentation and analytical interface using the Meta data. This process should not bother the user with any aspects of data shape, integrity or quality as the Business Analytical system ensures that these issues have been taken care of from a centralized standpoint. Furthermore, while Meta morphing a user does not work with the actual data; in spreadsheet terms this would be the number of rows and columns. Essentially and ideally, the user should only be concerned with the business issues, and the Business Analytics system should support the individual by allowing the user to pose questions and make analytical observations using familiar business language and terms, with visual presentation aids that ensure that an answer to the question will get the user further in the decision and action process.

Traditionally this kind of empowerment has only been available to a “Chosen Few”, and most often the system has been manual; but empowerment of individuals through the successful introduction of Business analytics will shorten the cycles of observation, decision making and action, and the staff at various levels in the organization will be able to react more quickly and autonomously, yet in total accordance with the overall plan; “The Common World View”.

Meta Morphing consists of two components:

1. A Common World View
2. An application that allows development of user or task specific systems that improve observation-decision-action cycles in speed and quality

In other words, Meta Morphing appears to be the vehicle that would allow an organization to improve decision quality and speed throughout an organization. If successful, this would mean that an organization would be more aware and flexible since action would be taken more often and more quickly. Such actions could span everything from corrective action to opportunity maximization, and the key is that every action would tie into the overall mission of the organization; the Common World View.

In view of this hypothesis, we investigate the benefits of the Business Analytics to an organization from the perspectives of the CEO, CFO, Sales and Marketing Manager, and CIO. We also compare the Business Analytics systems to the existing Enterprise Resource Planning system as well as the spreadsheet.

The rest of this paper is structured as follows. Sections 2 through 5 deal with the CEO, CFO, Sales & Marketing and CIO perspective on Business Analytics respectively. Section 6 brings the hypothesis and the findings of this paper in a

context with existing literature that relates to the subject, and section 7 holds the conclusions and suggestions that have come from the research.

## 1.2 Analytical process

The findings of this paper have been based on interviews with six participants, at the CEO, CFO, General Manager and CIO level, from five Danish companies. They are all users of ERP systems from Microsoft Business Solutions, they all use Microsoft Excel as a spreadsheet and they all use TARGIT as a Business Analytics system. For further assumptions that link this sample to companies internationally, please see the following section.

The interview process had three steps: First, the participant was asked to distribute a total of 100 points across 15 features according to their importance from the participant's perspective. Secondly, after assigning points, the participant was asked to rate on a 0 to 10 scale to what extent the participant felt that the company's current ERP, spreadsheet and Business Analytics systems matched each feature. Third, the participant was asked to answer the following open ended questions:

- What is the core competence in your company?
- What demands from the market is your organization faced with today?
- What is, in your opinion, the difference between the types of analysis and reporting?
- Who in the organization uses the different systems and for what?

The balance between the quantitative<sup>9</sup> and open-ended<sup>10</sup> questions is employed to allow quantitative analysis and presentations techniques that are superior to the mere wording while acknowledging the risk that a scale value can not necessarily be representative to the participants' perceptions; e.g. the respondents' judgment might be based on lack of familiarity with a particular system.

The 15 features in particular have been selected and categorized based on an analysis of contemporary literature from the business domain as described in section 6. Since the aim of this research is to identify the desired features of a Business Analytics system and put this in perspective with other company systems this makes sense, however one should be very cautious about drawing any conclusions about the general quality of either the spreadsheet or the ERP system as these systems were not designed with the same goals as the Business Analytics system.

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<sup>9</sup> Green, Tull & Albaum, 1988, p. 291

<sup>10</sup> Cooper & Schindler, 2001: p. 346

Table 1 – Features used for analysis, in the left column is the one the participant was confronted with, the middle column is the category of the feature and in the right column is the one that is used for presentation in charts to clarify the overview.

<b>Feature as described, sorted and presented in the survey</b>	<b>Feature category</b>	<b>Feature term used in charts</b>
Allows all users to ask <i>ad hoc</i> questions easily	autonomous	<i>easy ad hoc</i>
Allows all users to get a fast situation assessment and focus on the right issues	actionable decision cycle optimizing	focus
Allows information to flow faster throughout the organization	organizational context	fast information flow
Allows users to do complex analysis	autonomous	complex analysis
Creates a common "world view" throughout the organization	organizational context	world view
Eases the IT and Financial department's reporting burden	deployment and management	reporting burden
Improves data quality	actionable decision cycle optimizing	data quality
Improves decision quality	actionable decision cycle optimizing	decision quality
Is a vehicle to enhance and focus on our core competence	organizational context	core competence
Is easy for the IT staff to administer and manage	deployment and management	easy administration
Is easy to use for any type of calculation	autonomous	any calculation
Is extremely flexible for any purpose, both calculation and data gathering	autonomous	flexible for any purpose
Is only for specialized users with analytical experience	deployment and management	analytical experience
Requires a high level of training to use efficiently	deployment and management	training
Turns information into knowledge and action throughout the organization	actionable decision cycle optimizing	information to knowledge and action

Based on the data gathered in the so-called Constant Sum distribution of 100 points, a bar chart is used for each participant to reveal which features the participant perceives as most important to his or her company. This bar chart will give an immediate impression of what is important in general, and it will reveal the tradeoffs the participant made between the features.

Based on the participants' rating of each system's compliance to a feature, a joint-space<sup>11</sup> analysis is conducted. Such analysis is particularly suited for revealing the

<sup>11</sup> Green, Tull & Albaum, 1988, p. 612

participants' perceptions and preferences<sup>12</sup>. The joint-space analysis positions each system on an oriented line that represents the feature, and these 15 oriented lines are then projected into two dimensions along with the systems, which are used for orienting the lines relatively in the two dimensions. This means that if the systems had the same relative scores for two or more features, these features would be represented by the same oriented line.

These so-called perceptual maps will allow us to investigate which system is perceived as the most suitable to deliver the desired feature, and furthermore it will give an impression of the participants' perception of the similarities and differences among the systems as well as the features. In order to make the joint-space analysis most descriptive of the participants' perceptions, the oriented lines have been assigned a thickness in accordance with the number of points the participant assigned to the feature(s) that the line represents. Once the perceptual map has been generated, an analysis of the map will allow a naming of the principal components (axes). This naming is a manual process which seeks to best describe the two dimensions based on a summary of the orientated lines and their relationship to the principal components. In this research it has proven feasible to use the same naming of the principal components for all six participants, which simplifies the comparison of the participants' responses.

### 1.3 Assumptions

The software vendors Microsoft, Microsoft Business Solutions and TARGIT have been selected to be the yardsticks for the three system disciplines as all of these vendors can be considered among market leaders in their specialty. Microsoft delivers the world's most successful spreadsheet: Excel. Microsoft Business Solutions is the world's largest provider of ERP solutions for the mid-sized market. TARGIT is a much smaller provider than the two others, however TARGIT's strategy is exactly in line with that defined by the literature and as described in the 15 features.

Specifically, it is TARGIT's strategy to reach 95% of the users in a company by providing them with a high degree of flexibility for *ad hoc* analysis, yet in a strong correlation with the Common World View; this is what we defined earlier as the Meta Morphing ability.

Many other products introduce either centralized deployment for a chosen few or rigid mass distribution to accommodate the Common World View, yet this process sacrifices the individual empowerment and a short observation, decision and action cycle at multiple levels. Other products accommodate the flexibility for calculation and desktop processing much like the spreadsheet but, from a Business Analytics

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<sup>12</sup> Green, Tull & Albaum, 1988, p. 599

standpoint, this flexibility lacks the highly important Common World View that ensures that the organization is responsive and takes action with the right focus on multiple levels.

The companies that have been subjected to the analysis all have their offices in Denmark. In this context it is assumed that these companies could have been located anywhere in the western business world. First, all companies operate internationally with either vendors or customers; AS/3 and HLB Mortensen & Beierholm even have close strategic relations with American companies. Secondly, the competitive nature of the market in the western world is that of global competition<sup>13</sup>, therefore we can assume that all companies involved in the entire western business world are more or less shaped by the same factors. Finally, as we will see in the following section, we investigate whether the sample group seems to behave according to the parameters that are described in contemporary literature from the western world business domain.

In summary the following assumptions have been made

- The 15 features investigated are descriptive for the desired organizational functionality of a Business Analytics system.
- The 3 vendors Microsoft, Microsoft Business Solutions and TARGIT are at market leader level in their particular domain, and therefore their software is representative for the three domains.
- The 6 participants from the 5 companies provide a sufficiently large sample to get an idea of the product positioning in the western world.

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<sup>13</sup> Clemons and Santamaria, Harvard Business Review, April 2002 – See also section 6

## 2. CEO perspective

Tage Borregaard Pedersen is the CEO of HLB Mortensen & Beierholm. HLB Mortensen & Beierholm is a Danish member of the International Accountancy and Business Consulting Network, HLB International. HLB International is one of the 12 largest accountancy and business consulting networks in the world.

Company name:	HLB Mortensen & Beierholm
Revenue:	\$29 million
Employees:	324
Line of Business:	Consultancy and Accounting

2001 figures, source: Kobmandsstanden, Denmark

Within the organization, everyone has access to Excel spreadsheets, TARGET Business Analytics and reports from the Axapta ERP system. Pedersen considers it as a critical success factor to employ competent people who are service minded and who are able to address customers' needs with a holistic view. In other words, Pedersen wants to employ competent people who think.

The market conditions in which the organization operates are pretty steady; Pedersen sees the market as mature, and thus the primary rivalry is among existing larger players.

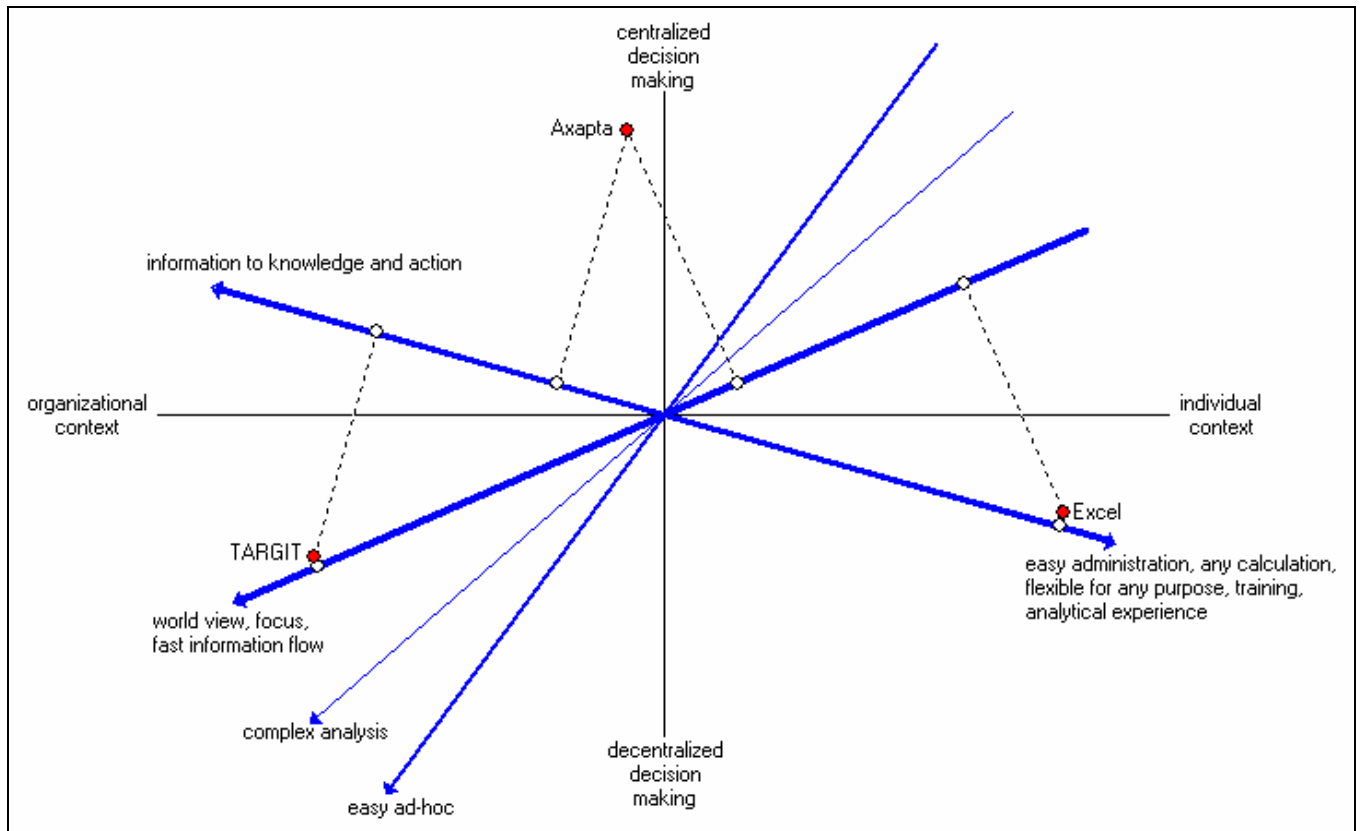
Figure 1 – Mr. Pedersen's rating of feature importance based on Constant Sum distribution of 100 points. The individual features have been colored according to their category.



Pedersen sees the role of Business Analytics as a mean to empower the individual; he sees BA as a tool that should aid the employee to move around freely within the boundaries of the employee’s core competence and area of responsibility. For this purpose, the TARGIT Business Analytics system is the tool. According to Pedersen, the implementation of TARGIT has reduced the need for information meetings and has facilitated more frequent performance follow-up and benchmarking where more details of the action to be taken is available.

In Mr. Pedersen’s opinion, the TARGIT Business Analytics application is the dynamic tool for everyday decision making and focus of actions, and the Axapta ERP solution is the backbone that holds data and ensures standardized reporting. The Excel Spreadsheet is a multi-purpose support tool that is used for a number of tasks that involve gathering, storing and presenting data.

Figure 2 – Perceptual mapping of the features compared to the systems. The width of the lines shows Mr. Pedersen’s perception of the relative importance of the feature.



We note that Pedersen positions Business Analytics as the best system when judged for the important features in an organizational context and the Spreadsheet for the most important features in an individual context.

With the line for Common World View, the ability to focus on the right issues and a fast flow of information throughout the organizations we find that Pedersen is very much in line with the hypothesis that Business Analytics is about this discipline. In this context it is also noteworthy that complex analysis and easy ad hoc analysis are close to this vector as well. One could guestimate that this would have been closer to the nature of Excel. Interpreting this finding tells us about the degree to which Pedersen considers ad hoc and complex analysis to be relevant; these disciplines are mostly relevant when allied in accordance with the Common World View; when this is not the case the decisions and actions that these disciplines lead to are irrelevant.

In practice the Business Analytics users have about 40 prefabricated analytical views. These views are made by super-users throughout the organization. Ad hoc analysis can easily be achieved by changing the parameters of these views.

### 3. CFO perspective

Peter Lund Christensen is CFO of AS/3, a company that specializes in staff outplacement and related tasks. AS/3 operates through 25 decentralized units throughout Scandinavia and works with both the private and public sectors.

Company name:	AS/3
Net income:	\$5.3 million
Employees:	68
Line of Business:	Consultancy

2001 figures, source: Kobmandsstanden, Denmark

AS/3 is highly focused around a concept that relates to outplacement includes coaching and career planning; for these purposes AS/3 aims to recruit employees who “make a difference”.

According to Mr. Christensen, the outplacement market is in a growth stage as an effect of the increasing corporate awareness of social responsibility. In the recent period, a number of outplacement tasks have arisen from companies that cut costs in response to the worldwide recession. AS/3 is the market leader in the outplacement segment in Scandinavia, but competition has increased recently as new entrants are becoming visible, in particular in the media where the marketing activities are increasing.

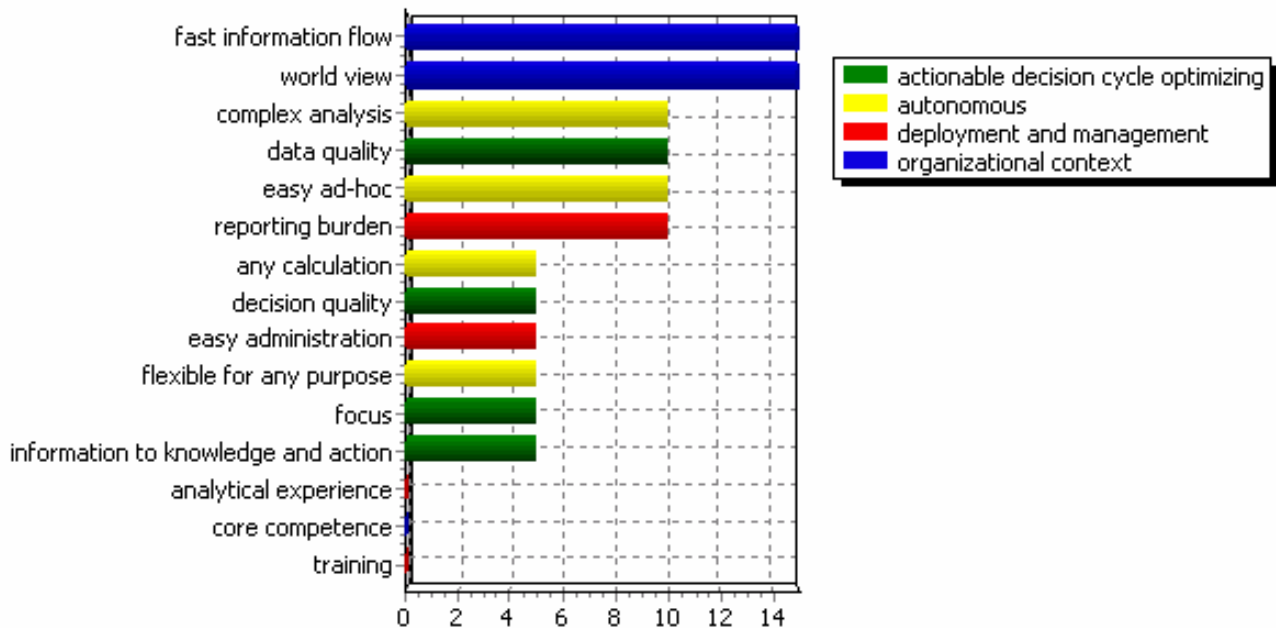
In AS/3, TARGIT Business Analytics is used for performance follow-up throughout the 25 decentralized units. All sales representatives and managers use TARGIT Business Analytics to analyze and for learning, sharing and coaching. A Common World View is achieved through 8 standardized analytical reports that have been

developed by Mr. Christensen; these standardized analytical reports have been customized to the individual manager’s level, and are flexible for pursuing trends by adding criteria and moving up and down in the level of detail. Christensen is the only user who has the full flexibility of TARGIT Business Analytics which he perceives as too complex for average users.

Microsoft Excel is used for controlling and verification issues, as it can access many data sources as well as conduct fast analysis, including gathering of data, with no previous examples. Excel is used by everyone throughout the organization.

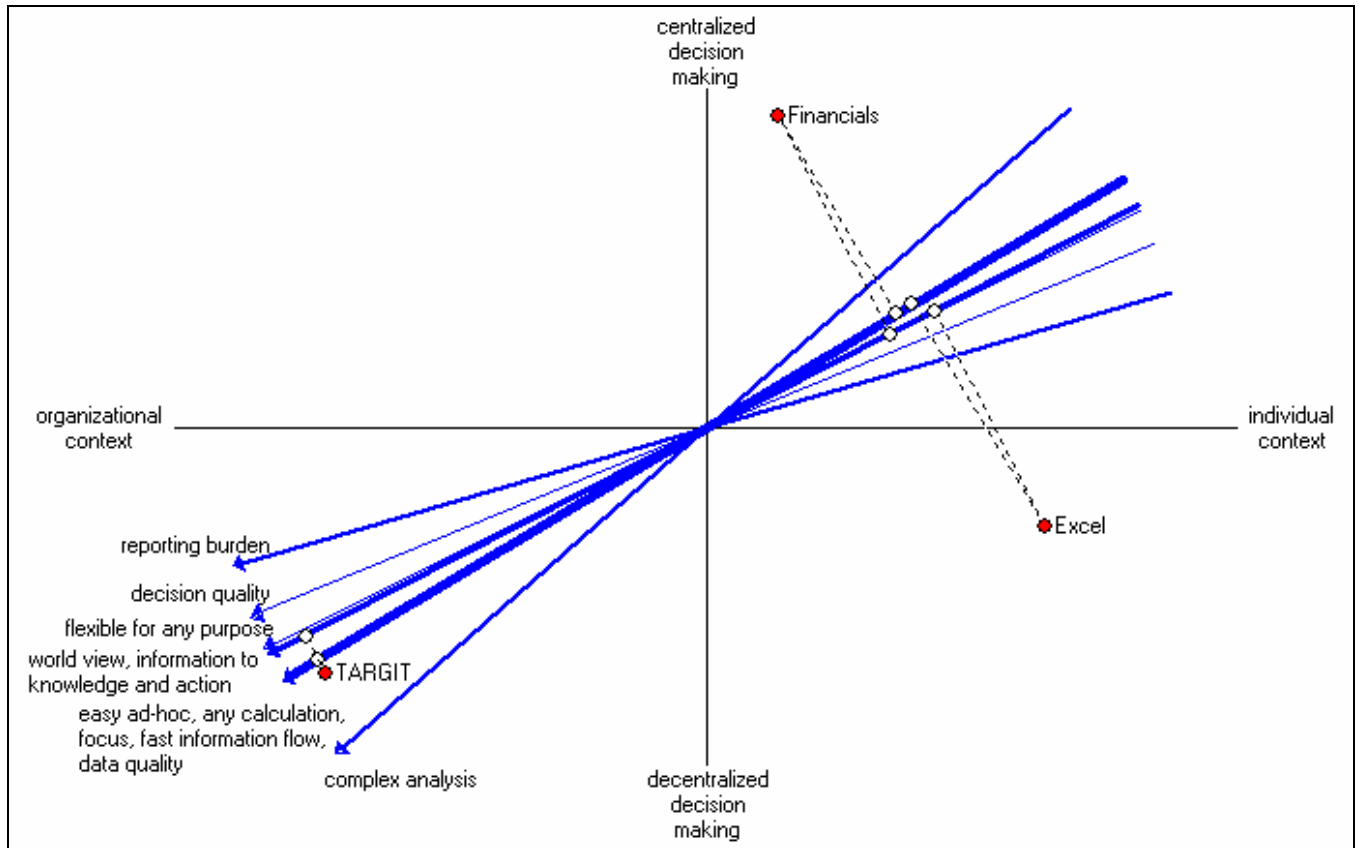
The Microsoft Business Solutions ERP system Financials is used as a backbone; meaning that all reporting that is controlled by legislation as well as data storage is done through this system. The finance department users are the only ones who have access to this system, and it should be noted that all reporting to management is done through TARGIT Business Analytics.

Figure 3 – Mr. Christensen’s rating of feature importance based on Constant Sum distribution of 100 points. The individual features have been colored according to their category.



As can be seen, Christensen perceives both a Common World View and information flow as the most important features. We note that in Christensen’s perspective, TARGIT Business Analytics covers these issues to a high degree compared to any of the other systems.

Figure 4 – Perceptual mapping of the features compared to the systems. The width of the lines shows Mr. Christensen’s perception of the relative importance of the feature.



In Christensen’s perceptual mapping, we note the high concentration of feature lines around the Business Analytics system.

#### 4.1 Sales & Marketing perspective (1)

Anne Lene Hamann is manager of the marketing department at Matas, which is one of the largest voluntary retail chains in Denmark with 288 outlets and 1,800 employees. Matas operates in the pharmaceutical segment with a range of products in cosmetics and personal care. The motto of the organizations is “Good advice makes the difference”, and the mission of the company is to “help customers to feel and look good, and be in a good mood at a reasonable price”.

Company name:	Matas
Revenue:	\$168 million
Employees:	115
Line of Business:	Retail

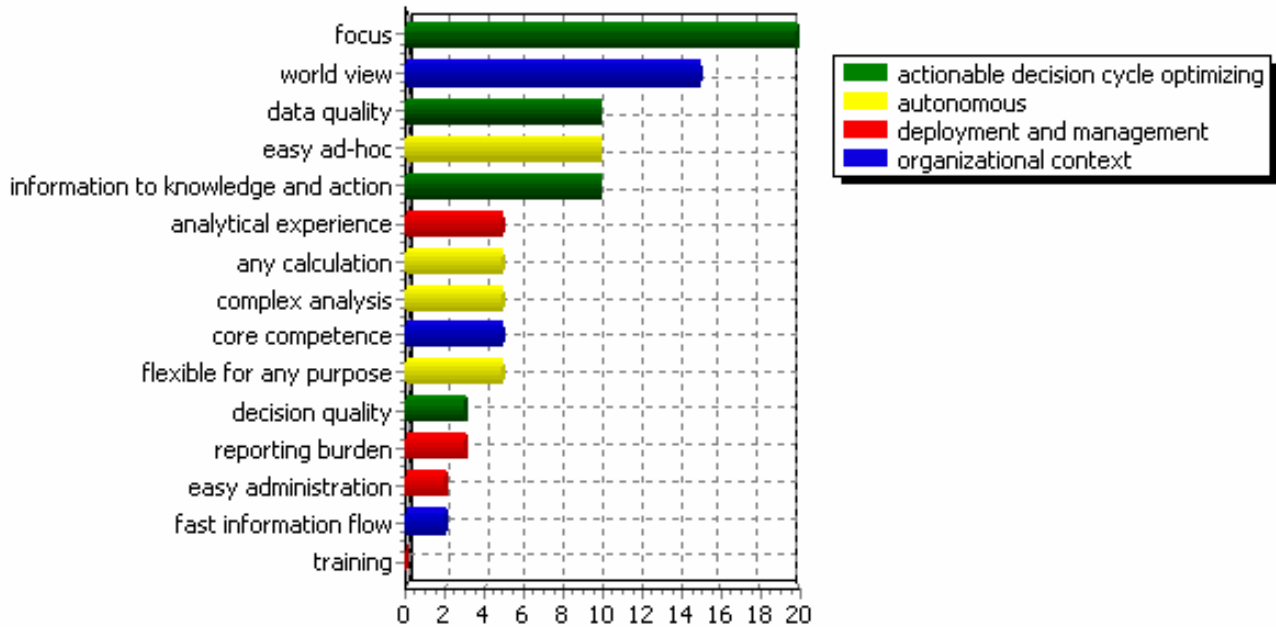
2001 figures, source: Kobmandsstanden, Denmark

In defining the core competence of the company, Mrs. Hamann refers to the company motto which is about making a difference for the customer through good advice. Although the 4 Ps of marketing: Product, Price, Place and Promotion still apply, she feels that an important task for Matas is to convey dreams for the customers in a trustworthy way.

Hamann describes the market condition as competitive; however as the product portfolio is very wide and fragmented, different products are at different stages of the life cycle. Fast action and reaction is needed, both in terms of new product development as well as in relation to the media.

As an organization, Matas operates with a decentralized decision process where the individual employee can affect things at different levels.

Figure 5 – Mrs. Hamann’s rating of feature importance based on Constant Sum distribution of 100 points. The individual features have been colored according to their category.



Hamann’s assessment of important issues ties into her description of the decentralized decision process of Matas, yet it is supported by the priority of the Common World View which is second most important. This combination supports the impression of an organization with a strong retail concept which is fuelled by a high degree of employee empowerment. Hamann did not find it appropriate for her to rate the system coverage of the features related to the IT department.

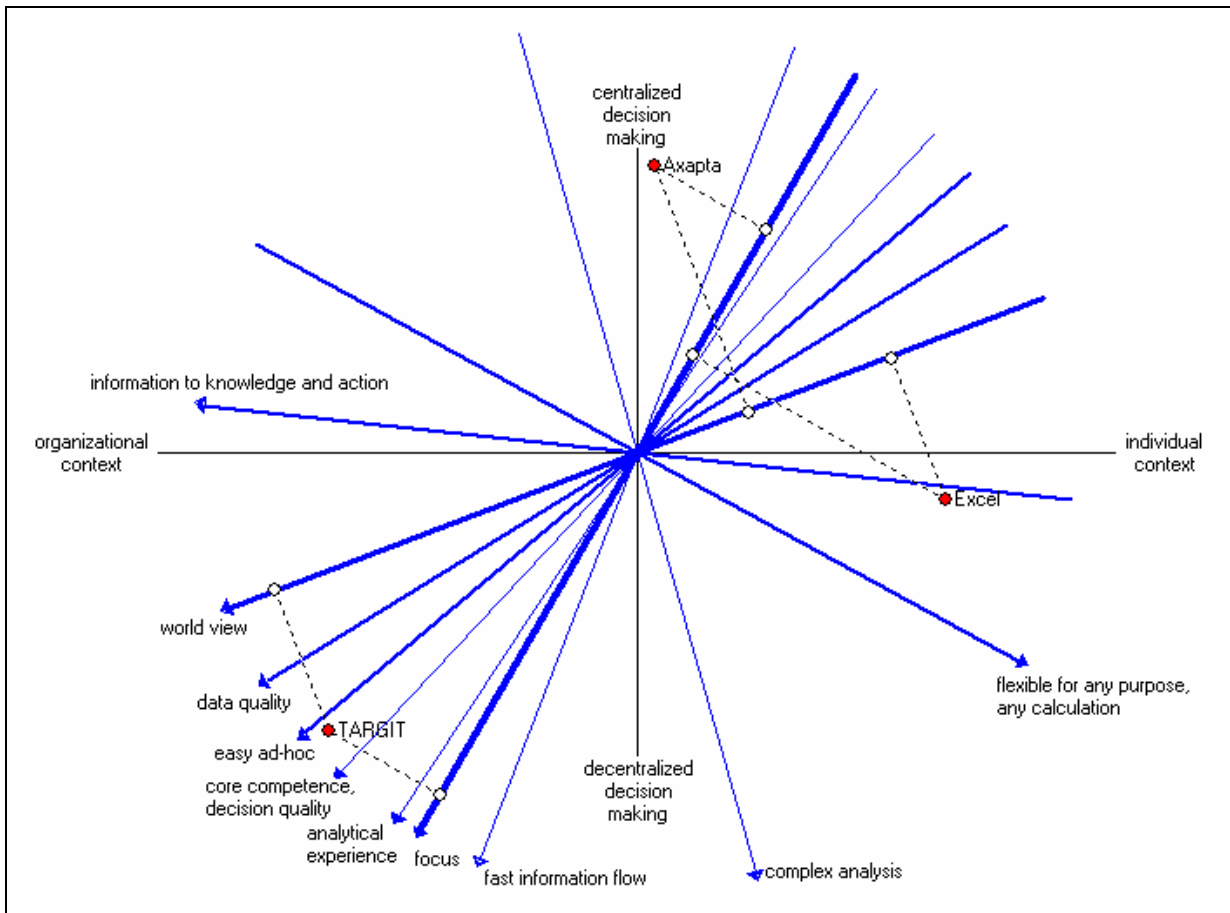
TARGIT Business Analytics is mostly used by managers across the organization as well as by the marketing department in general. The purchasing department also uses the system to some extent. In this context Hamann wishes that TARGIT

Business Analytics also supported the ability to handle comments, where a user could comment on the figures presented in the system.

Everyone has access to Microsoft Excel. Hamann describes Microsoft Excel as an invaluable supplement to TARGIT Business Analytics as well as a multi-purpose tool that is used for a variety of quite different tasks than analytics.

The ERP system Axapta from Microsoft Business Solutions handles all of the operation on a handling and tracking level. In Hamann's opinion, this is the most important system in the short term as no operation would be possible without this system. However, the analytical side of this system is weak as it is very time consuming to make ad hoc requests and calculations. Axapta is primarily used by purchasing and to some extent by marketing.

Figure 6 – Perceptual mapping of the features compared to the systems. The width of the lines shows Mrs. Hamann's perception of relative importance of the feature.



We note that Hamann rates the spreadsheet lower than the ERP system in terms of providing a Common World View whereas the spreadsheet is rated higher in terms of allowing focus on the important issues; she sees these features as important and best covered by the Business Analytics system.

## 4.2 Sales & Marketing perspective (2)

In another company, Nordisk Film, Michael Juncker is General Manager of the film distribution division that distributes films to cinemas and television stations and videos to retail and rental outlets.

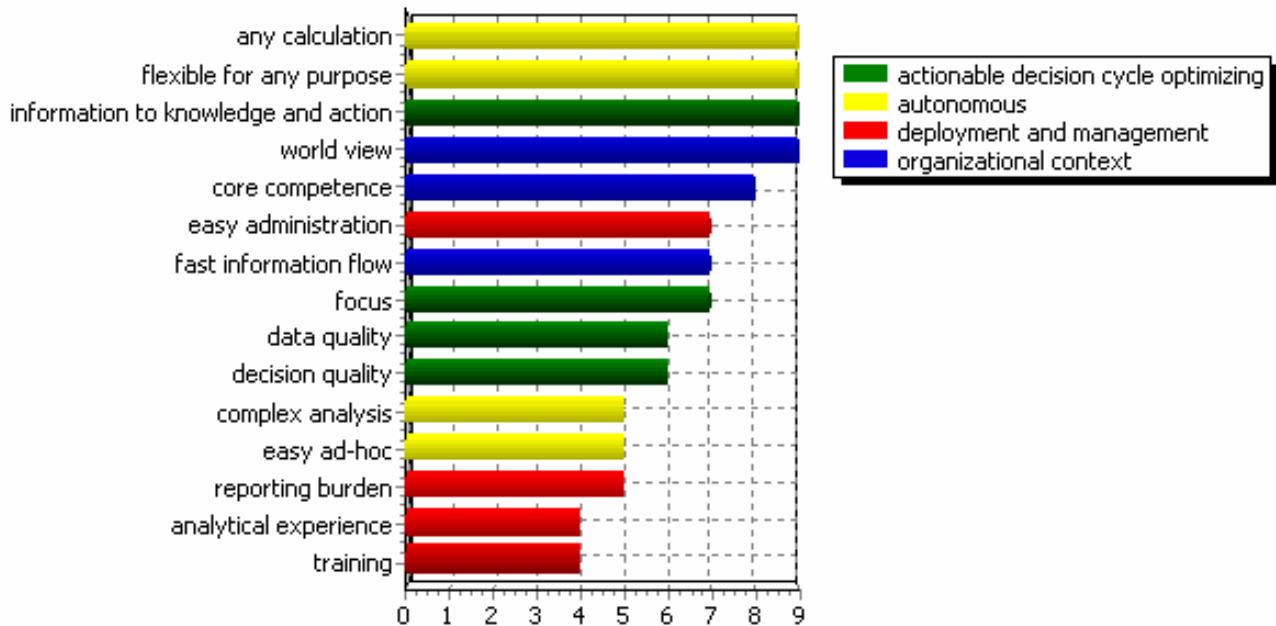
Company name:	Nordisk Film
Revenue:	\$87 million
Employees:	145
Line of Business:	Retail

2001 figures, source: Kobmandsstanden, Denmark

The key to success in this business is to get the consumers to see the film as many times as possible as it passes through the pipeline from cinema through video to television.

Mr. Juncker describes the film market as being in a fantastic growth situation; the new DVD format is boosting sales considerably. The Nordic rivalry in the business is among a small group of competitors that seek to position themselves in the market based on product and marketing planning and execution.

Figure 7 – Mr. Juncker’s rating of feature importance based on Constant Sum distribution of 100 points. The individual features have been colored according to their category.



In terms of recruitment, Juncker feels that the company is privileged to be in the entertainment industry with exciting products and being part of the Egmont group, "...but he stresses that it is the company that moves to meet the employee and not

the other way around." One way of doing this is to provide the employees with empowerment that matches their competence and also to provide them with the best tools. Juncker uses the metaphor of sports about their working environment, where the elite have the best tools, and compete not for hours but for seconds.

The usage of the systems investigated reveals a symbiotic relationship between TARGIT Business Analytics and Microsoft Excel: both products are used for all tactical and strategic decisions. However, TARGIT Business Analytics is used on a day to day basis whereas Microsoft Excel is used more on a monthly basis for these disciplines.

TARGIT Business Analytics helps create a Common World View using visual standards that gives an easy overview of Key Performance Indicators, which allows the user to focus and take action promptly yet in accordance with the overall plan. Furthermore, TARGIT Business Analytics is used to share information with vendors across the web; this gives vendors deeper insight into the movements of their product and thereby allows for better, faster and deeper coordination of market initiatives.

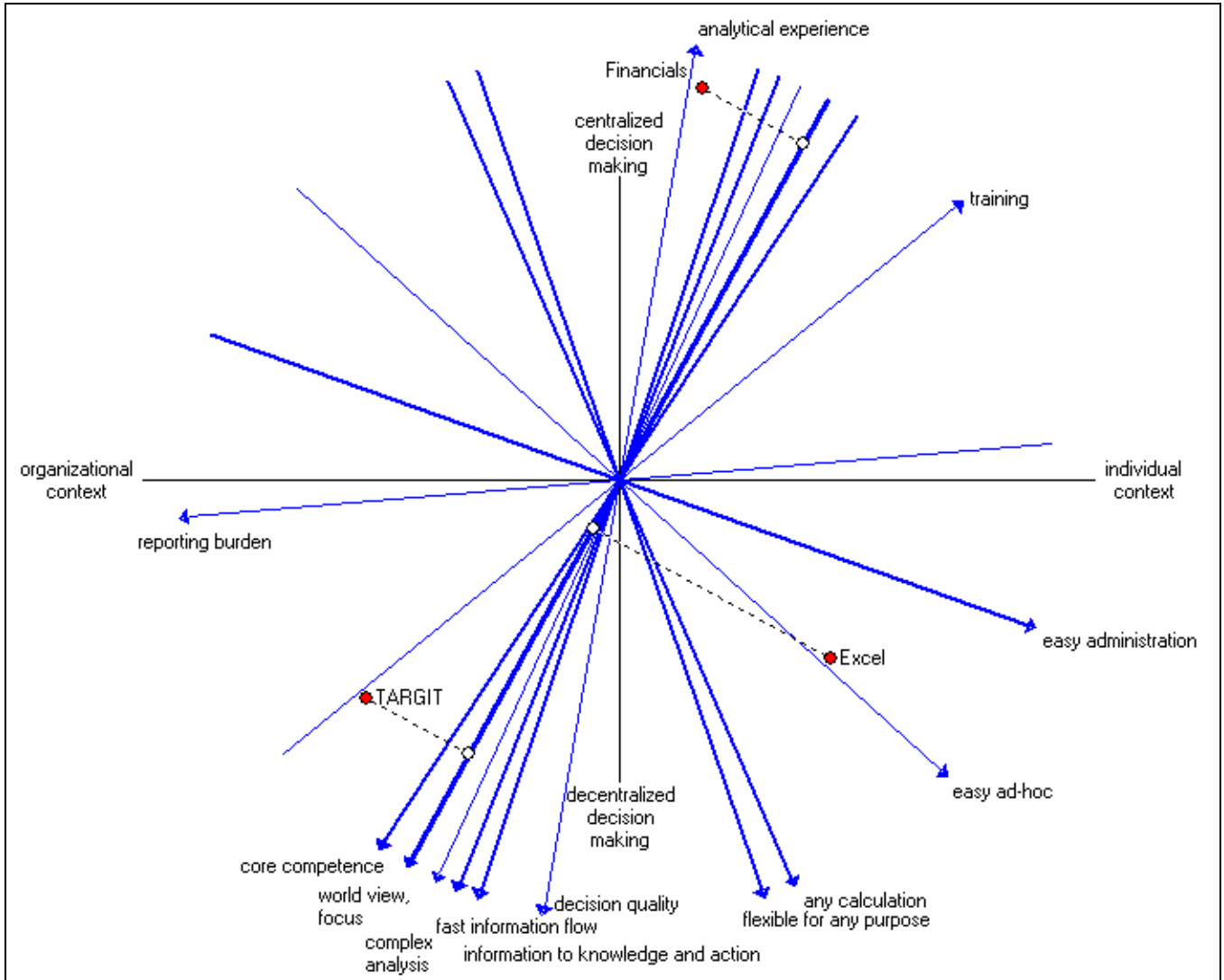
On the other hand, Juncker sees Microsoft Excel as having strengths in the ability to create complex ad hoc calculations as well as being highly flexible.

The Microsoft Business Solutions Financials is used as the operational backbone which ensures smooth operation and stores data.

Everyone in the company has access to Microsoft Excel and Microsoft Business Solutions Financials, whereas the access to TARGIT Business Analytics is limited to sales and marketing as well as vendors.

In Mr. Junckers ratings, the top four issues are a combination of TARGIT Business Analytics and Microsoft Excel strengths, specifically a Common World View and information flow against an easy and flexible approach to calculation and data gathering.

Figure 8 – Perceptual mapping of the features compared to the systems. The width of the lines shows Mr. Juncker’s perception of the relative importance of the feature.



We note the wide spread in the perceptual mapping, while noticing the concentration around the most important feature: the Common World View.

### 5.1 CIO Perspective (1)

In the same company as Mrs. Hamann, we find Leif Thesmer as the CIO. Since the details of systems deployment for Matas has been discussed earlier, we will concentrate on Mr. Thesmer’s perceptual mapping.

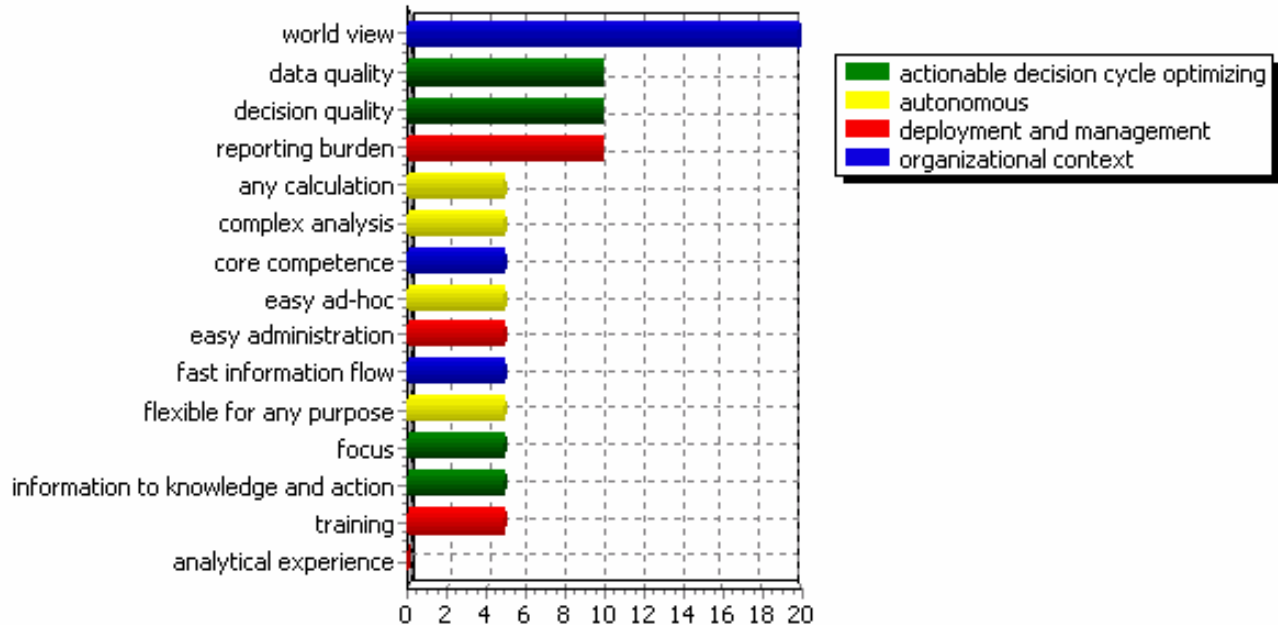
In Thesmer’s view, TARGIT Business Analytics is useful to retrieve information from a centralized data store. TARGIT Business Analytics is flexible and can be used to

identify the information desired. Thesmer believes in a Common World View created from a few centralized analytical views as he believes that TARGIT Business Analytics requires some training to be used productively, especially if there are a number of options to select from in terms of dimensions and measures.

According to Mr. Thesmer, formatting seems easier in Microsoft Excel. He believes this is due to users having had more experience with this system, and the flexibility of the system. This means that users sometimes choose Microsoft Excel to do additional work in terms of formatting and calculation.

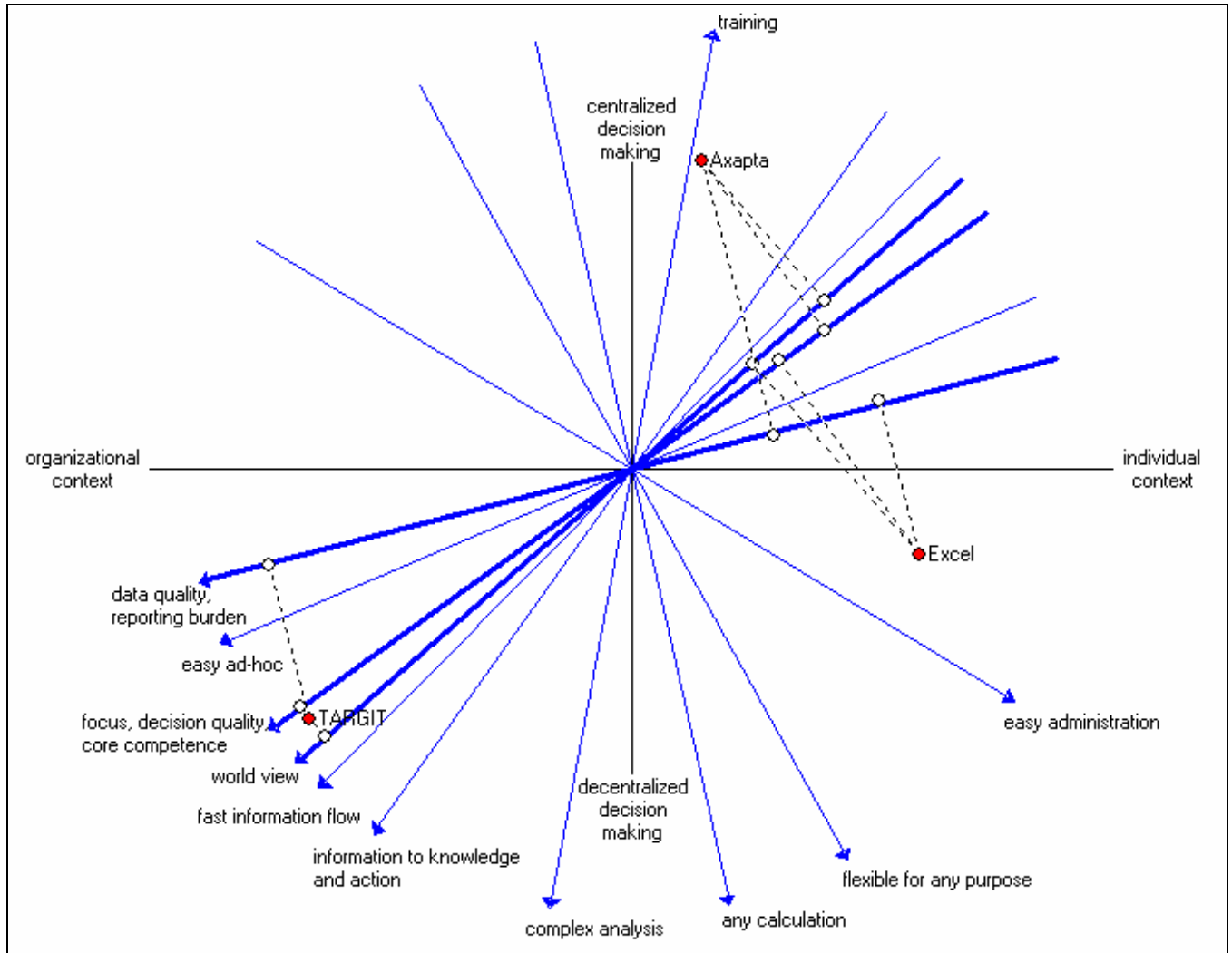
The ERP system Axapta from Microsoft Business Solutions is described as a backbone and centralized database from which all other information is derived.

Figure 9 – Mr. Thesmer’s rating of feature importance based on Constant Sum distribution of 100 points. The individual features have been colored according to their category.



We note that Mr. Thesmer values the ability to create a Common World View as the feature of highest of importance, and the data and decision quality as well as a reduction of the reporting burden on the IT staff as secondary priorities. These four issues account for 50% of the points that Thesmer has distributed.

Figure 10 – Perceptual mapping of the features compared to the systems. The width of the lines shows Mr. Thesmer’s perception of the relative importance of the feature.



Again we note a spread with a concentration of the most important features around the Business Analytics system.

## 5.2 CIO Perspective (2)

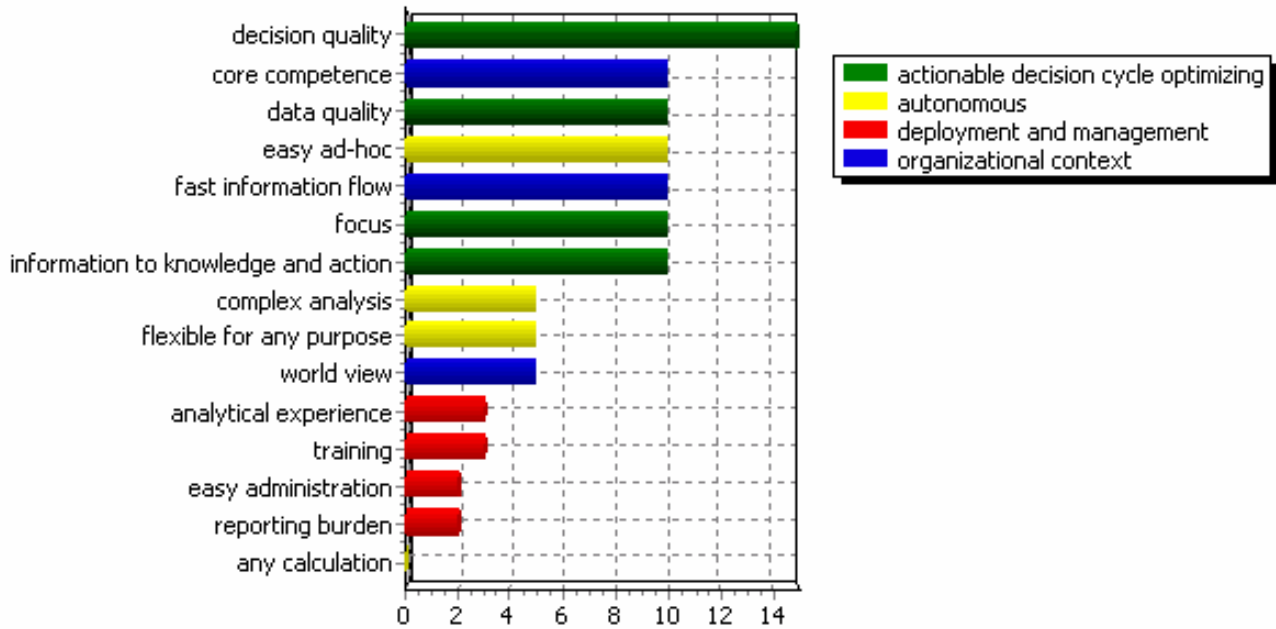
A colleague CIO, Mikael Andersen, works in Dantherm which specializes in manufacturing compact systems that control temperature, humidity and dust in electronic units for customers such as Ericsson, Motorola, Siemens and Nokia. Dantherm is headquartered in Denmark and has subsidiaries in the USA, England and China.

Company name:	Dantherm
Revenue:	\$28 million
Employees:	192
Line of Business:	Production

2001 figures, source: Kobmandsstanden, Denmark

With leading mobile phone manufacturers as the largest customers, Dantherm has felt the market stagnate with the economic challenges of the telecommunications business. This maturity has not changed the market positioning of Dantherm's products. The company still seeks to deliver innovative quality products in accordance to customer specifications; the flexibility in particular is seen as the competitive edge over competition.

Figure 11 – Mr. Andersen's rating of feature importance based on Constant Sum distribution of 100 points. The individual features have been colored according to their category.

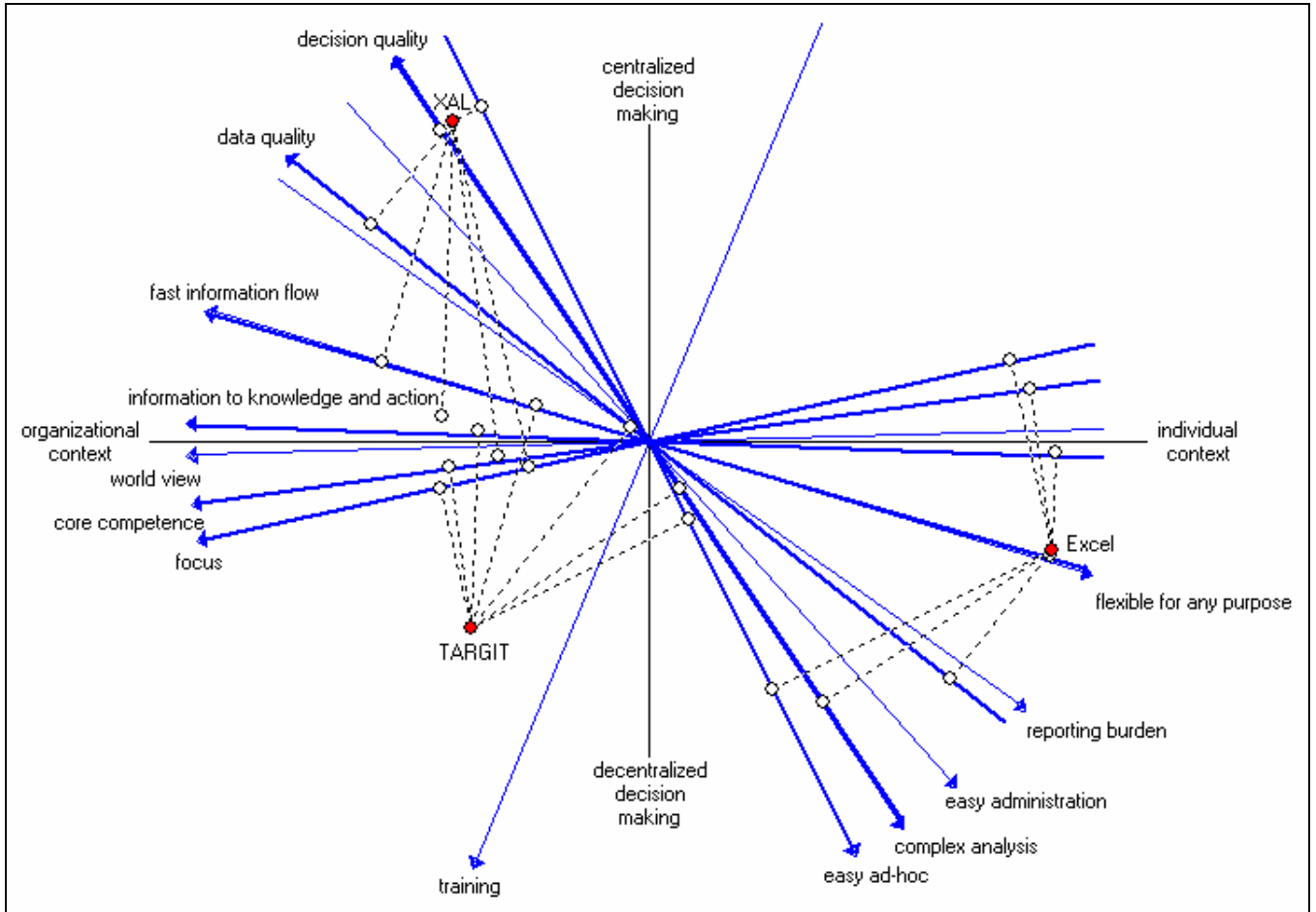


At management level, TARGIT Business Analytics is used to create an overview and focus action; since it is only the top management that has access to TARGIT Business Analytics at this point, Mr. Andersen does not rate a Common World View as high as did the other participants. The plan is to roll the TARGIT Business Analytics solution further out to the users and at this point the issue of a Common World View might be more important.

Microsoft Excel is used by all in the organization as a multi-purpose tool for any task that involves calculation and gathering of data.

The ERP system is XAL from Microsoft Business, a solution which is a generation prior to the Axapta system. Mr. Andersen gives a low rating to the reporting abilities of this system yet admits it solves all the challenges of daily operation and the storage of data related to this.

Figure 12 – Perceptual mapping of the features compared to the systems. The width of the lines shows Mr. Andersen’s perception of the relative importance of the feature.



Mr. Andersen is different from the other participants in that he does not have the same concentration of important features around the Business Analytics systems as did the others. He does have the Business Analytics system as the best for delivering a Common World View and focus of action, but he does not perceive these features as being as important as the other participants thought it was.

One could speculate that these benefits have not yet been obtained in his organization due to the stage of the Business Analytics rollout process.

## 6. Consistency with literature

In 1999, Bill Gates' book "Business @ the Speed of Thought" was published. This added another piece of useful information about the organizational challenges in the knowledge age to the global information pool.

The knowledge age, as Gates' describes it, is characterized by the ever increasing availability of information. The challenge for successful organizations is to make the information reach the right people at the right time, and to accommodate this the organization need to have a digital nervous system. A digital nervous system brings the organization to life in that it creates a constant awareness of the globally competitive environment in which the organization operates, and furthermore it transports the impulses to the right people, thus facilitating rapid situation assessment and reaction<sup>14</sup>.

The idea that the organization's environment demands a digital nervous system as a means for basic survival is supported by other bestselling books such as "Competing for the Future" , by Gary Hamel and C.K. Prahalad, that suggests not only an observational approach to the surrounding environment, but an actual probing of the environment to obtain new mega-opportunities in the global market place<sup>15</sup>. Such opportunities do not arise from the traditional operation alone, but require more free and informal flow of communication and knowledge that unleash opportunities that arise from the organization's core competence rather than the rigid traditional organizational structure<sup>16</sup>.

Similar recommendations can be found in Vivek Ranadivé's "The Power of Now" in which the power of real time information is stressed<sup>17</sup>. Furthermore, Ranadivé suggests that leadership is a matter of leading by being led<sup>18</sup>, as this will unleash the full potential of the organization through the individual talents within the organization. However, in order to do this in an overall effective way from the organization standpoint, the mission and values needs to be very clear<sup>19</sup>.

Inspired by these arguments from the literature, we find it relevant to investigate the desirability of the following **organizational context** features that position the Business Analytics system in the overall organizational context:

- Allows information to flow more quickly throughout the organization
- Creates a common "world view" throughout the organization
- Is a vehicle to enhance and focus on our core competence

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<sup>14</sup> Gates, 2000, p.11

<sup>15</sup> Hamel and Prahalad, 1994, p. 30

<sup>16</sup> Hamel and Prahalad, 1994, p. 243

<sup>17</sup> Ranadivé, 1999, p. 8

<sup>18</sup> Ranadivé, 1999, p. 143

<sup>19</sup> Ranadivé, 1999, p. 146

In “Business @ the Speed of Thought”, Bill Gates states that he considers meetings with more than four participants a sign of an organizational problem, making the additional point that his meetings are based on solid analysis and produce actionable decisions<sup>20</sup>. Why? Because Microsoft is hiring creative thinkers; such people should be empowered with a seamless flow of the information they need through the digital nervous system.

Gates gives the example of the need for information that middle management needs as much information as senior management, but much too often has less<sup>21</sup>. This also ties into the information system platform, because the number of middle managers is typically higher than that of the senior management. In order to overcome this task, the information systems’ platform should not only give the middle management access to data, it should also allow the middle management to search and limit the large amounts of data so it supports their particular area of responsibility.

Gates does not argue the case alone. As early as 1956, William H. Whyte described bureaucracy and orders as killers of creativity and initiative in his “The Organization Man”. Additionally, Mihaly Csikszentmihalyi, author of “Flow: The psychology of optimal experience”, describes a state in any working situation where excellent performance occurs as the result of a state of flow: “When the information that keeps coming into awareness is congruent with goals, psychic energy flows effortlessly.”<sup>22</sup> In other words excellent performance and employee satisfaction occur during a period of time without disturbances or frustrations that a rigid organizational structure may impose. Ensuring that employees feel the impact of empowerment and excellent performance is becoming more and more part of the employee/organization contract since the number of creative people as a percentage of the entire organization is rising<sup>23</sup>.

Another argument for distributing the ability to make decisions, other than the motivational and organizational potential in doing so, could be the necessity to act and react to market conditions. The recent article in Harvard Business Review called “Maneuver Warfare: Can Modern Military Strategy Lead You to Victory?” suggested that the modern tactics of maneuver warfare apply more to the current business environment of rapid and disruptive change, fleeting opportunities, incomplete information and an overall sense of uncertainty and disorder<sup>24</sup>. The concept of maneuver warfare is to have multiple time-competitive OODA cycles; which means cycles which cover the sequence of observation-orientation-decision-action<sup>25</sup>. Having more cycles than the enemy has will eventually win the battle; this advantage can be achieved by decentralized decision making supported by the availability of

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<sup>20</sup> Gates, 2000, p. 20, 174

<sup>21</sup> Gates, 2000, p. 18, 21

<sup>22</sup> Csikszentmihalyi, 1990, p. 39

<sup>23</sup> Florida, 2002, p. 44, 47

<sup>24</sup> Clemons and Santamaria, Harvard Business Review, April 2002

<sup>25</sup> Lind, 1985, p. 5

correct information and knowledge in this process. A critical issue in this context is that every soldier and leader needs to have a clear and synchronized view of the common objective of the battle in order to act autonomously<sup>26</sup>.

In studying Microsoft, David Thielen found that much effort is put into preserving the startup mentality which harnesses both an underdog and empowerment mentality<sup>27</sup>. Such elements suggest that employees should be creative thinkers and work within limited resources to exploit the competitors' strengths and weaknesses. Ranadivé provides another evidential case, showing how Goldman Sachs benefits from real time information in order to put actionable decentralized decisions to work quickly, in his description of the Goldman Sachs Warrior, which is the employee empowered by real time information<sup>28</sup>. This example gives insight into the benefits that both the organization and employee can gain by using such technologies.

From this part of the literature we identify the features that we label **actionable decision cycle optimizing** to position the Business Analytics system:

- Allows all users to get a fast situation assessment and focus on the right issues
- Improves data quality
- Improves decision quality
- Turns information into knowledge and action throughout the organization

In addition to the seven features that have now been identified as primary positioning parameters of a Business Analytics application, we add the following features that refer to personal productivity which, as stated in the introduction, has arisen from the office tools of the PC era. The difference between the features above and the following features is that the features below are not necessarily linked into a Common World View throughout the organization, thus they can be applied 100% by the user in any given situation. These **autonomous** features refer to the classic domain of the spreadsheet:

- Allows all users to ask ad hoc questions easily
- Allows users to do complex analysis
- Is easy to use for any type of calculation
- Is extremely flexible for both calculation and data gathering

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<sup>26</sup> Lind, 1985, p. 13

<sup>27</sup> Florida, 2002, p. 131

<sup>28</sup> Ranadivé, 1999, p. 8

Finally we have a number of features that are not all necessarily desirable. These features deal with the ease of the **deployment and management** of the systems. The features refer to the workload and training that is required to implement and support the systems as follow:

- Eases the IT and Financial department's reporting burden
- Is easy for the IT staff to administer and manage
- Is only for specialized users with analytical experience
- Requires a high amount of training to use efficiently

With these arguments anchored in the literature, the research was carried out as described in sections 2 through 5.

A final issue to resolve would be the justification of investigating the positioning of Business Analytics rather than Business Intelligence. In this context please note the specific definition of these terms in section 1, as the IT industry in general has used these words rather differently in the recent years.

In “Leadership is an Art” we find that, according to the author, Max DePree, leadership is a human art that requires involvement and empathy<sup>29</sup>. These disciplines are factors that conventional technology is not able to overcome at its current stage of development. Additionally, Gates makes a point that in his opinion email is the most valuable information system<sup>30</sup>.

These arguments lead us to conclude that human involvement in managing and leading is still very important. Yet technology plays an important role as the servant in the quality of these processes. We decided therefore to investigate the Business Analytics system which has the overall goal of supporting the human decision process.

Philosophically, one could argue that, like fire, computers make good servants but poor masters.

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<sup>29</sup> DePree, 1989, p. 11

<sup>30</sup> Gates, 2000, p. 177

## 7. Conclusion

We are now able to summarize the findings from both the interviews and the literature:

Based on the individual interviews, we can conclude that the participants in general felt that the Business Analytics system covered the features related to organizational context and actionable decision cycle optimization; the only exception from this clear picture is one CIO who rates the ERP system as equally important in respect to the actionable decision cycle optimization. Depending on the function of the participant, we found that the CEO and CFO perceived the Business Analytics system to be a facilitator to optimize the personal autonomy whereas the sales and marketing participants had a preference for Microsoft Excel for this purpose. The CIO's are divided on this issue. In terms of deployment and managing the systems we found a mixed picture, where the TARGIT Business Analytics has slightly more high scores than the other systems.

We note that the features relating to the business needs weigh higher on average than the deployment and management features. The need for a Common World View and the ability to focus actions are the top priorities.

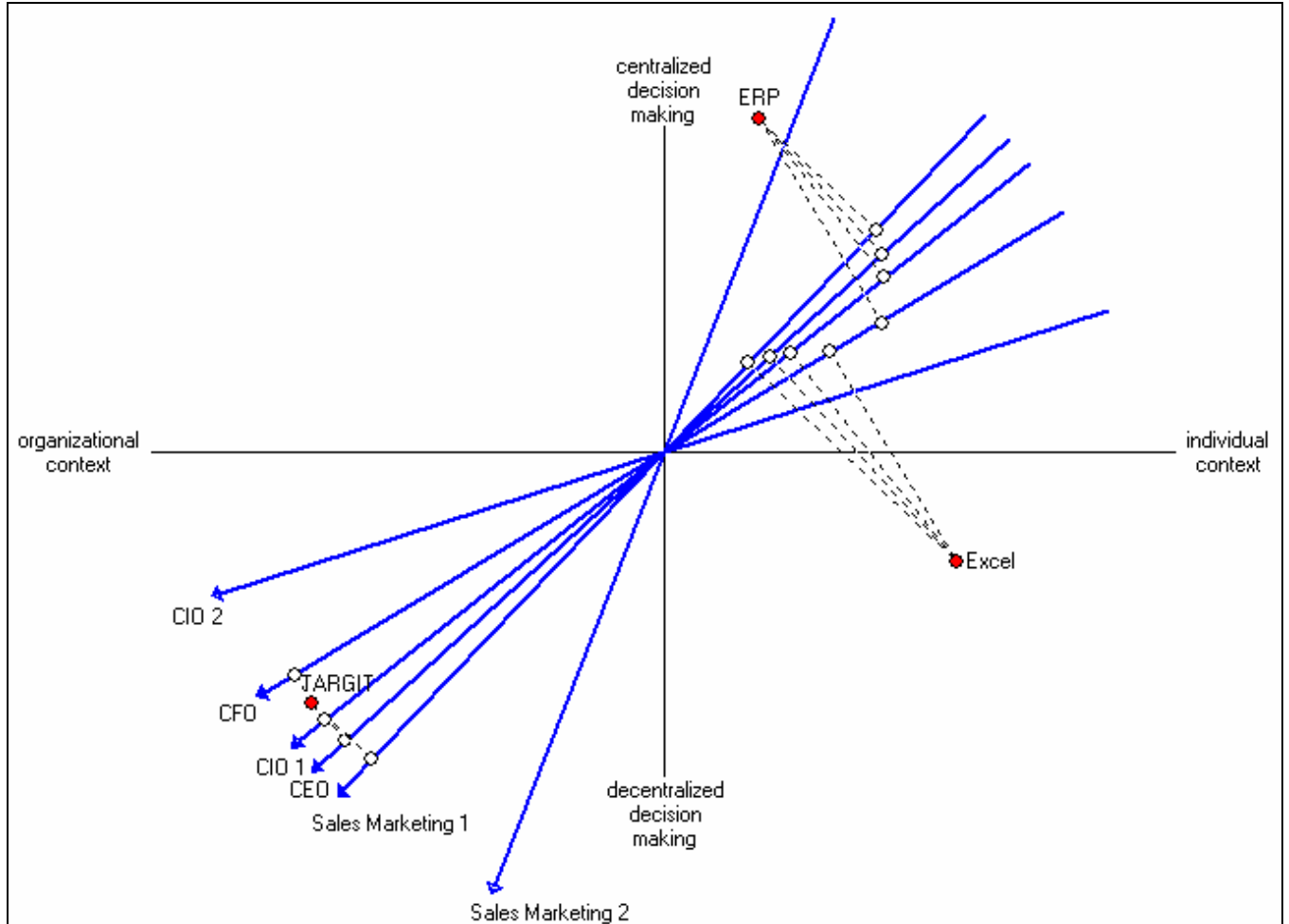
Figure 13 – Average rating of feature importance based on Constant Sum distribution of 100 points for all participants. The individual features have been colored according to their category.



If we consider the top 10 features that account for 81% of the points distributed and do a perceptual mapping of the participants, based on their average rating of the systems, we find a high concentration around the Business Analytics system. This

means that all the participants perceive this system as the best fit by far to cover the most important features overall.

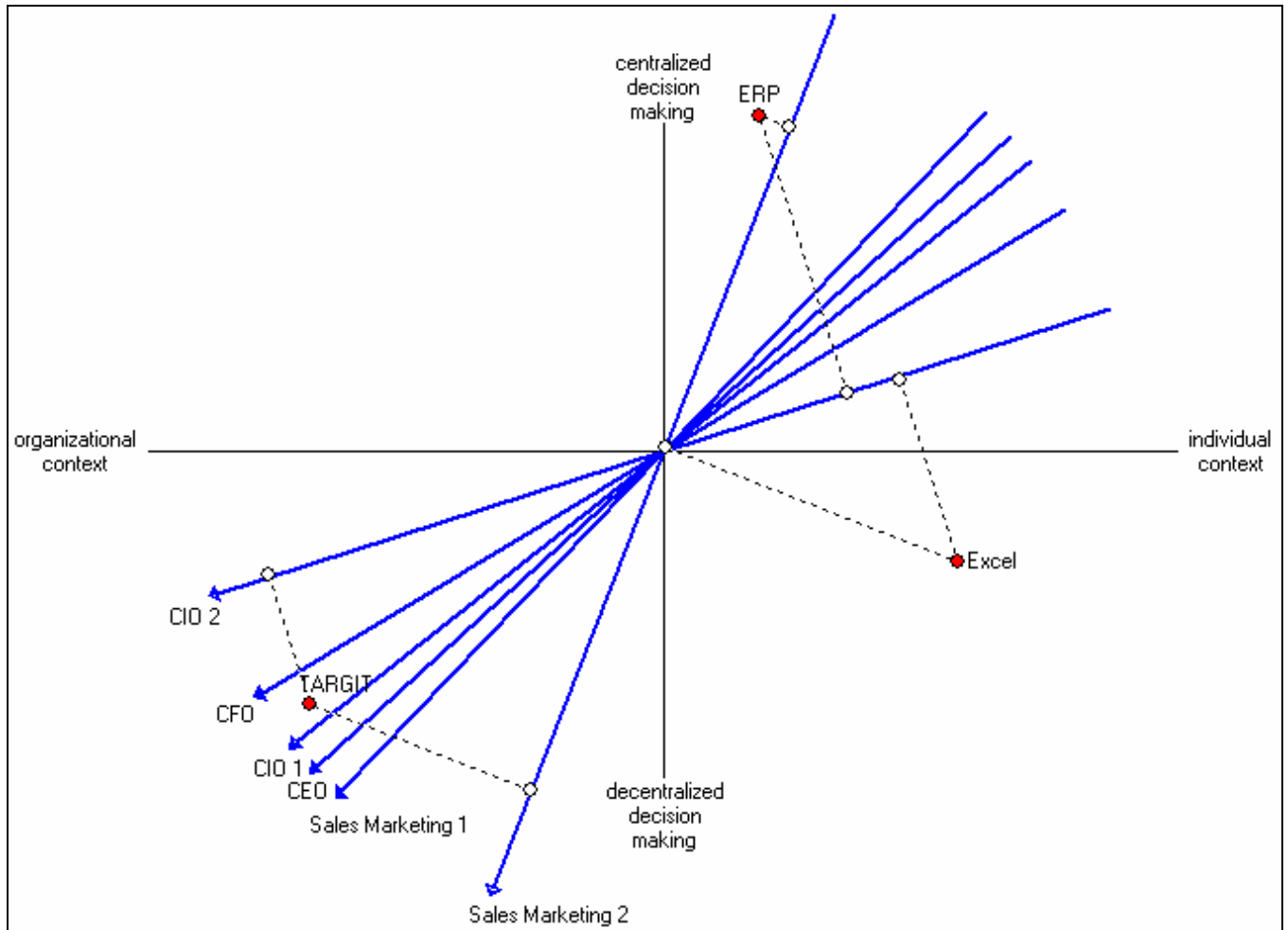
Figure 14 – Perceptual mapping for all participants based on average rating of top 10 important features. Projections have been made to the lines that represent the participants who are in agreement.



It is worth bearing in mind that the participants come from various lines of businesses, yet they have the same preference for the important features as well as the system that supports these. This leads us to conclude that it is possible to deliver these benefits to all companies, regardless of their line of business, provided that the Business Analytics system allows the users to Meta Morph to accommodate their individual needs.

We note that only two of the participants seem to have a slight deviation in terms of their preference for whether the spreadsheet or the ERP system is second in line to meet the features, yet regardless of the order between 2<sup>nd</sup> and 3<sup>rd</sup>, the Business Analytics system is the undisputed first choice.

Figure 15 – Perceptual mapping for all participants based on average rating of top 10 important features. Projections have been made to the lines that represent the participants who recorded the most disagreements.



With reference to Bill Gates, we note that information traditionally has been for the chosen few managers<sup>31</sup>, but this paper suggests that there can be some significant benefits from Business Analytics in that it can make the organization more aware and flexible. Since Business Analytics facilitates the fast information flow of quality information to every employee and manager who needs it, it also facilitates faster actionable decision cycles. Business Analytics concurrently ensures that there is a Common World View that the increased number of actionable decisions comply with.

In summary, Business Analytics is a discipline that is required for organizations to unleash the potential of every employee. By doing so, an organization can obtain a competitive advantage by being more aware of and responsive to the environment. Business Analytics is about allowing actionable decisions to be made, not by a chosen few, but by the entire organization in accordance with the Common World View of the organization.

<sup>31</sup> Gates, 2000, p. 17

Based on this research we conclude the following:

- The participants' assessments of important issues are in line with the literature findings.
- The need for organizational context and actionable decision cycle optimization are forced upon organizations from the market environment in competing for both customers and employees.
- The ability to facilitate decentralized decisions in an organizational context can be done by Meta Morphing which is a combination of allowing a Common World View to be brought into the context of the individual.
- The Business Analytics system investigated supported Meta Morphing and was perceived to be superior to the spreadsheet and ERP systems in covering the features that the participants rated most important to their organizations; in particular the features positioned as facilitators of decentralized decisions in an organizational context.

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