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MANAGEMENT COCKPIT AS A LAYER OF INTEGRATION FOR A HOLISTIC PERFORMANCE MANAGEMENT

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ABSTRACT

Management nowadays is confronted by a variety of information originating from either internal or external sources. Thereby, the difficulty to focus on the relevant and company critical key-figures information increases. In practice, information management is often a major weakness of efficient corporate management. That weakness is caused by the lack of a centralized, categorized and summarized presentation and analysis of strategy and decision-relevant information. Management cockpits, a kind of information center for managers, are an approach to meet the challenges of information management. They are a specific work environment for decision makers to get a quick and simple overview of the company's economic situation. In the most completely equipped premises, the entire process is supported - from acquiring information, to analysis, decision-making, and communication. Use of management cockpits, a cross-functional, KPI-based and strategy-oriented controlling and management process, can be successfully established in companies as well as the work of interdisciplinary management teams, which are supported. In order to provide these possibilities, the management cockpit is equipped with a range of functionalities that allow the structuring, categorization and management-adequate visualization of information along with extensive analysis and simulation options. Management cockpits, as a communication and collaboration platform, are a starting point and valuable process companion on the way to holistic and sustainable performance management.

Keywords: Corporate Performance Management, Management Cockpit, Performance Measurement

INTRODUCTION: TERM AND TASKS OF A MANAGEMENT COCKPIT

The management of today is confronted with a variety of information originating from internal and external sources. It is difficult to focus on the essentials and to keep the company on a strategic course in a time of ad hoc and individual information flooding. Furthermore, it is a huge challenge for companies to continuously collect all relevant information about customers, competitors, and markets in a timely manner to evaluate and prepare it quickly and systematically regarding its relevancy and appropriateness to the recipients.

Performance management places a special focus on creating transparency to determine the current position as well as formulating the objectives to be achieved. A strategic overview, without losing sight of details, is essential and critical to success for an effective corporate management (Roth, 2014).

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to get a quick and simple overview of the company's economic situation. In the most completely equipped premises, the entire process is supported - from acquiring information, analysis to decision-making, and communication. This requires the combination of various technical aids and instruments, such as video conference systems, BI technologies, multiscreen controls, etc. In literature, the terms "Management Dashboard" and "Management Cockpit" are oftentimes wrongly and synonymously used. A management dashboard graphically displays several key figures on one screen whereas a management cockpit primarily supports the information analysis phase.

Just like the pilots of a plane taking over the control and responsibility of the aircraft from inside their cockpit, the management is given a set of instruments to successfully control the company. Management cockpits are not only supposed to create transparency of the company's situation, but also offer support regarding the overall management process by making the planning, supervision, and controlling more effective and efficient. Compared to previous approaches, partly identified as "War Rooms," this approach foresees the managers to take a seat inside the cockpit themselves and not let it be monitored by assistants in an information situation center.

Many intentions to establish a management cockpit have failed or haven't met the ambitious requirements and objectives of the past years. As part of the Reutlingen University research area "Enterprise Performance Management & Business Intelligence," a variety of management meetings as well as their upstream and downstream management processes have been analyzed whereas concepts have been created along with how meetings and related processes can be designed more effectively and efficiently overall.

The following displays how a management cockpit can be designed and implemented in order to meet the objectives of a holistic performance management.

Figure 1. Management cockpit of the study program Business Informatics at Reutlingen University

INITIAL SITUATION IN COMPANIES

Nowadays the presentation of PowerPoint verities takes up much room in companies worldwide. Just like MS Excel has established itself as the controller tool, PowerPoint presentations became indispensable for management meetings. However, each presenter and manager represents and confronts management colleagues with his or her own "verity" in the presentation, which ultimately results in many disadvantages (Roth, 2010).

On the one hand, the costs are extremely high until one PowerPoint presentation makes its way to top management due to the enormous need for coordination throughout individual hierarchy levels. The finished presentation requires one individual view and therefore takes several coordination loops. On the other hand, the costs and the duration of the "information refinement" process are difficult to calculate. Furthermore, the risk of manual preparation and individual interpretation (of the upstream management level) of controlling-relevant information prevails.

This condition is mostly not, or only temporarily, tolerated for other business processes. Frequently, the data basis, data quality, and the presented opinion are questioned in the meetings. During the discussions, the issues can mostly not be clarified which results in follow-up jobs and review points. Hence, the efficiency of management meetings suffers and the room for maneuver is partly lost due to a lack of responsiveness (Roth, 2012).

Even though companies have established a uniform database based on centralized data warehouse architecture, the common numerous decentral implemented analysis tools do not meet the requirements to provide a holistic controlling instrument.

INTEGRATION DUE TO A STRATEGY-BASED CONSISTENT CONTROL MODEL

A "Key Performance Indicator" (KPI)-based control requires a clear strategy or control model which rests on the company strategies. Only if

1. the objectives and strategies can be clearly phrased,
2. the necessary measures and initiatives can be defined, and,
3. their realization progress and target contribution can be measured based on indicators, turning away from the tactical control and focusing on the next quarterly results is possible.

The hub and pivot are also Balanced Scorecards, that, when used properly, help to break down the strategies along the responsibility hierarchy into operative levels, ensuring a company-wide anchoring and strategy pursuit (Gleich, 2011).

The management cockpit allows an interlocking of this top-down-driven controlling method with the process-oriented, oftentimes bottom-up-oriented view to a holistic and consistent control model. The advantages of the combination of these different perspectives (Business Process Management and Corporate Performance Management) are obvious and lead to an integrated performance management.

The project-based perspective can also be combined and integrated very easily. This helps to continuously keep the overview of the portfolio and overall project landscape while not losing detailed information (budget, resources, risks, etc.) out of sight.

Furthermore, it is recommended to establish a direct connection between key figures, target, and incentive systems. For this, it is necessary to derive the achievement of the individual manager objectives from the achievement of the controlling indicators. The focus on strategic and operative objectives is increased enormously if management can permanently track the achievement of objectives in the incentive system (Roth, Primm, Rümmelin, & Schlipphak, 2008).

It is also important to identify the cause-and-effect relations between the different measurements and objectives in order to model and visualize their dependencies in the management cockpit (Kobrin, 2010).

Figure 2. Management dashboards (top), cause-and-effect relations diagram (bottom-left) and perspective views of a Balanced Scorecard (bottom-right)

As a result, it is possible for the managers to simulate the potential impacts and effects in the management cockpit in advance. These methods help to strongly focus corporate management on the strategy implementation and the achievement of long-term objectives (Jetter, 2004). The short-term objectives should obviously not be disregarded. Mostly management dashboards, which visualize the relevant parameters in the form of planning deviations for short-term success, are established.

Depending on the management system and the added value organization, division-related, process-oriented or project-related key figures are in a stronger focus. Regarding the selection of contents, early warning indicators are mainly used to point out any initialing defects to the management and to keep the greatest possible room for maneuver open.

In general, not only material parameters but also immaterial indicators such as the ability to develop innovations should be presented (Spath, 2003). It is important to keep a balanced and manageable mix of well-aligned long- and short-term performance indicators to deploy the management cockpit for short-term problems and crisis management as well as monitoring a successful strategy implementation.

VISUALIZATION AND ANALYSIS OPTIONS IN THE MANAGEMENT COCKPIT

### Structuring and Categorization of Information

Next to the control model for the content-related design of the cockpit, the management-adequate visualization of information is an essential acceptance and success factor. In conformity with the control concept, a consequent top-down approach should be chosen. Based on the top success key figures (such as Return On Investment [ROI], Earnings Before Interest and Taxes [EBIT]), which can mostly be visualized and analyzed in management dashboards in single frames within a window, a set-up following a logical view is recommended.

For the most part, information is structured corresponding to internal company structures (subsidiaries and company, product or customer segments, etc.) or company-external structures (market, competitors, etc.). It is recommended to divide the cockpit into walls, so that management doesn't lose the overview and the recognition factor is strengthened. The walls categorize information that is relevant for the decision-making process into different perspectives (Daum, 2005):

- Black wall: Presentation of the most important strategy-relevant key performance indicators and top key figures (e.g. sales and earning situation)
- Blue wall: Detailed view of internal processes and resource situations (e.g. employee capacity, productivity)
- Red wall: Detailed view of market, competitors, and customers (e.g. market shares, customer requirements)
- White wall: Status of strategic initiatives/measurements and most relevant projects

The structuring of the key figures regarding business administrative functions (HR, procurement, controlling, etc.) takes place underneath these top categories. The management can navigate by finger-clicking and swiping inside a conveyor belt of hierarchically or deviation-relevant-arranged key figures and select the respectively relevant key figures. That way, it becomes possible for the management teams to get to work on and save individual assignments of the cockpit walls and the navigation areas beside the standard assignment.

Figure 3. Exemplary navigation and selection options based on tiles and conveyor belts
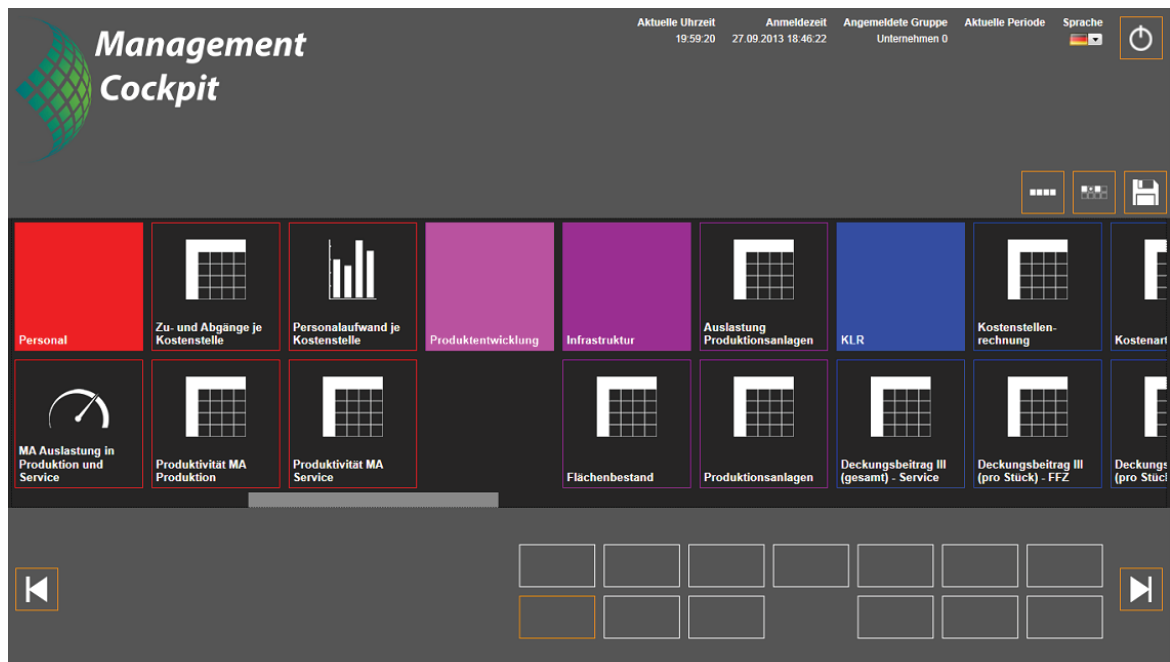
Oftentimes it is questioned if the management is overburdened due to the wealth of information and if there is a risk of losing track. Furthermore, there is the question why several screens are stringently needed. Especially this kind of information structure makes it possible for the management to keep track of decision-relevant circumstances and differentiate the important facts from the unimportant ones in the most simplified manner and follow exceptional situations.

Management-Adequate Visualization

Thanks to the adequate visualization of deviations and exceptional situations, the manager is aware of the actual important issues and is able to dedicate his or her precious time and capacity to these topics without having the feeling of losing something more urgent or important out of sight.

Let's pick up the picture of the pilot again: Only by combining the variety of different information, the pilot is able to guide his plane securely. At this point it isn't questioned, if there is information flooding. Furthermore, the management cockpit only reflects the complexity of the reality which cannot be denied.

Especially the parallel visualization on several screens gives management the opportunity to immediately make impacts of decisions visible in an overall context. For example the question, what consequences requirements on group level have in terms of individual subsidiaries and vice versa, can be answered. This results in a transparency of complex structures and processes as well as their dependencies. This way, a holistic controlling comprehension is developed on all management levels.

Besides the hierarchical categorization of information in the order of importance, the graphical preparation also helps to develop a sustainable transparency. Business Intelligence (BI) technology platforms support the visualization of company data decision-relevant and addressee-suitable. The different BI tools offer a variety of visualization possibilities and alternatives. It is essential that management can capture the core message simply and quickly. Figure 4 shows an example how quantitative and qualitative key figures can be visualized.

Figure 4. Exemplary visualization of quantitative and qualitative key figures

The intuitively operated user interface allows the management to navigate to the issue cases fast, simple, number-, and fact-driven throughout the company structures. Moreover, there is the possibility to continuously monitor business processes and automatically inform the management thanks to an alarm function in case action is needed.

Extensive Analysis and Simulation Possibilities

Next to creating transparency of process and company-critical facts, the management is supported in their decision-finding by extensive analysis and simulation possibilities. Thanks to planning and forecasting functionalities or through data mining methods, forecasts of presumed developments based on to-date information can be visualized ad-hoc in meetings, adequate for the management addressees.

What if ("What happens if …") simulations allow graphically displayed potential economic consequences of entrepreneurial actions (Oehler, 2006). Different scenarios can be acted out by the

management right away (e.g. the graphical simulation of "what effects have got an x percent sales modification on the turnover or key figures such as the Return on Investment or asset turnover" by using a multistage Dupont tree of key figures).

By adjusting the relevant screws in the form of rotary adjustment and asking questions such as "How do quantity of sales, turnover, or profit contribution change if prices are adjusted by x percent?", the management can develop a significantly higher sensibility for concrete economic interrelations.

The immediate and parallel visualization of economic consequences for the company on several screens draws the management a holistic picture of potential decisions and results in an essential decision-making supporting tool. Furthermore the overall picture is given the final touch thanks to textual commenting of the economic facts, definitions, premises and background.

Figure 5. Example of a simulation based on a "What if scenario" (Dolde, 2008, p. 57).
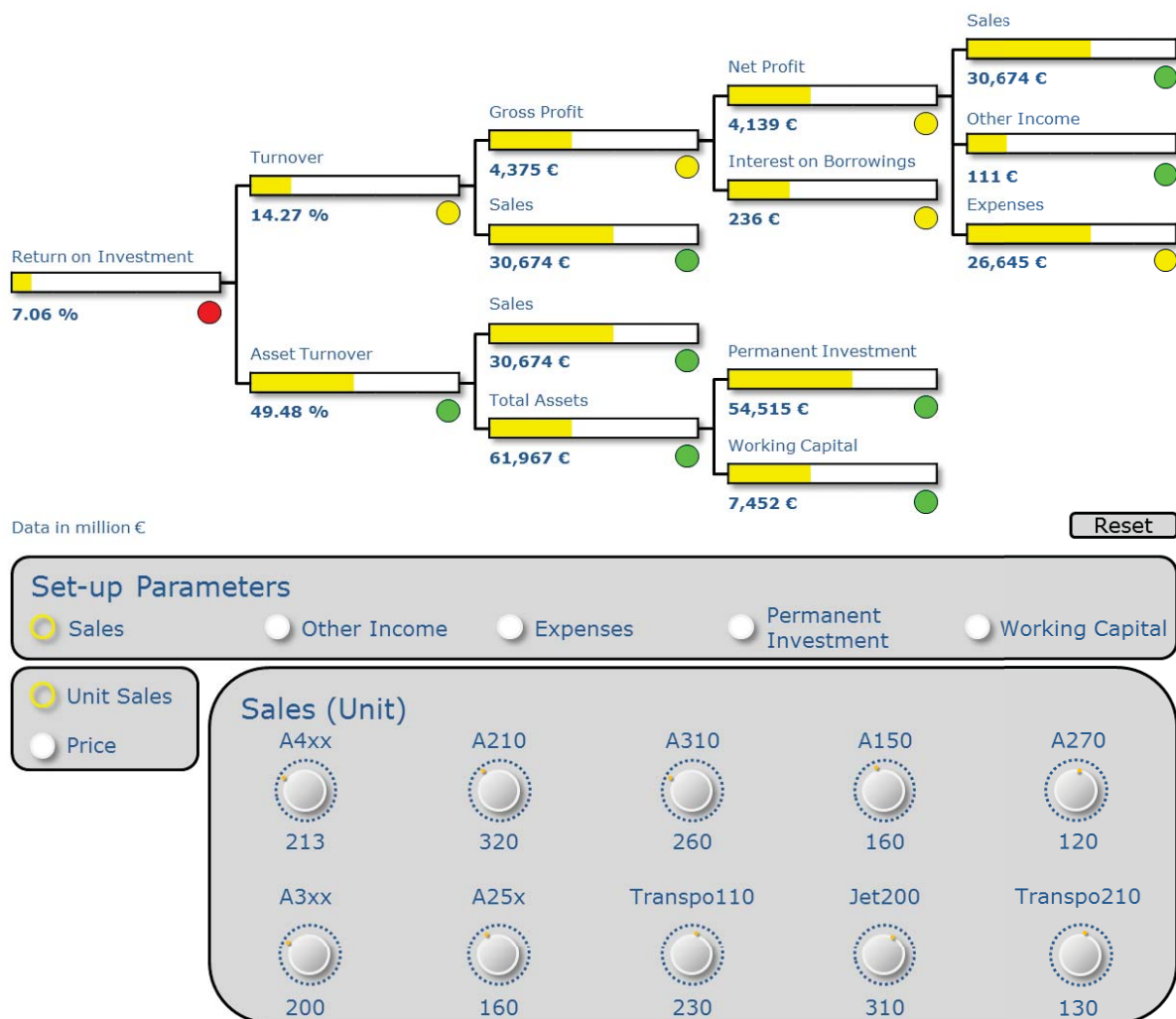
IMPROVED TEAM AND PROCESS SUPPORT WITH COCKPITS

Managers think and act globally. It is normal to operate in different team constellations while working in different locations. That's why it is absolutely necessary to equip the management cockpit with videoconference technology to give managers out-of-town the chance to join in the meeting independently from their location.

Depending on the number of cameras, each participant can be assigned a separate screen so that there are less communication limitations within the team.

It is beneficial for an efficient collaboration if all participants see the currently targeted on-screen discussion at the same time. This is guaranteed by using a digital whiteboard. All analysis steps, no matter if via mouse action or via touch system, can be traced live by each participant. Besides the classic navigation by means of Online Analytic Processing (OLAP) functionalities (via finger pressure), notes can be made with a pen and erased with a sponge. This way, it is possible to directly write in the programs (e.g. in the BI application), websites or videos with "digital ink" but without special tools.

All windows of the management cockpit can be displaced or exchanged randomly throughout the screens and the digital whiteboards. As a result, meeting topics or entire management meetings can be documented, processed, tracked, or recorded electronically for the participants and those who couldn't join. The timely creation of minutes, the documentation as well as forwarding work packages are supported significantly. They can be basis for post-communication within the management team or directed towards further stakeholders (e.g. board of directors).

The management cockpit also offers the space for planning and related discussions and coordination measurements. Post-controlling ensures that all stakeholders are able to channel the information and focus on the objectives.

Management processes can be designed much more efficiently thanks to the possibility to make uniform information and analysis options location-independent and simultaneously available. A common transparency of the strategic and operative facts is generated. As a result, a target-oriented communication and discussion within the circle of the management team is initiated. The management cockpit serves as a jointly used communication and collaboration platform for management decisions.

The questions arising from discussions can be immediately answered by the means of commonly-used analysis and simulation possibilities. Furthermore, the significantly higher communication liability helps to increase the performance of the management team.

CONTRIBUTION TO A HOLISTIC PERFORMANCE MANAGEMENT

With a management cockpit, selected economic scenarios and strategies can be defined, analyzed, and verified and can serve as a basis for integrated performance management (Chamoni & Gluchowski, 2010). Additionally, their implementation can be traced and monitored. Due to the monitor function, the management cockpit supports to recognize and manage crisis situations.

The management cockpit helps to create transparency for all stakeholders on different management levels at any point of time. A common understanding of the company's objectives and situation is created by this transparency within all parties involved in the controlling process. This is a prerequisite to connect people with different thinking and socialization and guide them towards a joint direction. Controlling-relevant stakeholders (board of directors, management board, managers, project leaders, project managers, etc.) are linked to each other thanks to structured information and approach their departments or projects coordinated and aligned but independent from each other. Performance management is effective when the transparency ultimately contributes to employees identifying themselves with the company's objectives and performance orientation.

Thanks to the room to exchange structured information, a management cockpit offers the opportunity to establish a holistic performance management without having to design and implement a continuous control model in a long-running process. The management cockpit, as integration level, rather offers the chance to initiate, actively accompany, and moderate this process.

In summary, the following effects are observed:

- The higher transparency regarding opportunities, risk and the possibility to evaluate decision alternatives ultimately results in better decision quality.
- Due to the uniform information basis and standardized meeting procedures with clearly defined regulations, the participants can focus on the essential facts whereas the meeting duration is shortened and the effectiveness and efficiency are increased.
- An improved management team and process support speeds up decision processes and creates further scope of action.
- By transforming from tactical to strategic management, company potentials can be better exploited.
- If the management cockpit is consequently used, the strategy-oriented, KPI-based controlling and management process is sustainably established within the organization and within the employees' minds.
- Efforts for reporting can be reduced tremendously thanks to centralized data storage, a "Single Point of Truth," standardized reporting processes and layouts.
- Besides integration, the continuous process of improvement is sustainably initiated in terms of a long-term management approach.

REFERENCES

Chamoni, P., & Gluchowski, P. (Ed.) (2010). *Analytische Informationssysteme – Business Intelligence-Technologien und Anwendungen*. Berlin: Springer.

Daum, J. (2005). Trend Report – November 1st, 2005: *Strategy & Performance Management*. Retrieved from http://www.juergendaum.de

Dolde (2008). *Aufbau eines Management Cockpits auf Basis von SAP Netweaver BI und Business Objects XI,* Bachelor's thesis in collaboration with Braincourt GmbH.

Gleich, R. (2011). *Performance Measurement. Konzepte, Fallstudien und Grundschema für die Praxis.* Munich: Franz Vahlen Verlag.

Jetter, W. (2004). *Performance Management.* Stuttgart: Schaeffer-Poeschel.

Kobrin, M. (2010). *Corporate Performance Management als Weiterentwicklung von Business Intelligence.* Hamburg: Diplomica Verlag.

Oehler, K. (2006). *Corporate Performance Management*. Munich: Hanser.

Roth, A., Primm, D., Rümmelin, K., & Schlipphak, M. (2008*).* KPI-basierte Management-Incentivierung: Ziel erreicht – Zahlung angewiesen. *Business-Intelligence-Spektrum.* Copy 3/2008, pp. 31–35.

Roth, A. (2010). Unternehmenssteuerung mit Management-Cockpits, in *Wirtschaftsinformatik & Management*, Copy 3/2010, pp. 20-25.

Roth, A. (2012). Unternehmenssteuerung und-reporting mit Management-Cockpits, in: Klein, A.: *Reporting und Business Intelligence*, pp. 92 – 104. Munich: Haufe-Lexware.

Roth, A. (2014). *Ganzheitliches Performance Management*. Munich: Haufe.

Spath, D. (2003). *Corporate Performance Management – Bausteine, Konzepte, Produkte*. Stuttgart: IRB Verlag.