WHITE PAPER

THE ADVANCED SOLUTION FOR BETTER REPORTING

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Executive Summary

This white paper introduces RADAR, an advanced software solution designed to facilitate status tracking and reporting in project-oriented organizations of all sizes. Guided in its development by the core principles of system-based project status reporting, this is a simple and user-friendly tool that is nonetheless capable of meeting the requirements of modern management reporting.

Chapters of this white paper give an overview of the system's design, describe features and functionality that make up the core of RADAR, and propose a range of potential applications of the tool in a variety of business contexts. Finally, to showcase the effectiveness of the system, the document concludes with a case study describing the results of implementing the RADAR solution in the project management office of a multi-brand automotive group.

Introduction

Radar systems of all sorts have long become a part of our everyday lives. No longer are they exclusive to military, and many new civilian application areas have contributed to their wide spreading. However, very few know that the fundamental principles of this technology have been developed in the German Rhineland area over 100 years ago at the beginning of the 20th century.

To be more precise, it was the year 1904 when a German engineer Christian Hülsmeyer (1881–1957) first applied for a patent in Düsseldorf. His invention, the telemobiloscope, was a transmitter-receiver system for detecting distant metallic objects in the line of electrical wave projection. It was designed as anti-collision device for ships and could be used to alert of the nearby presence of vessels in poor visibility conditions.

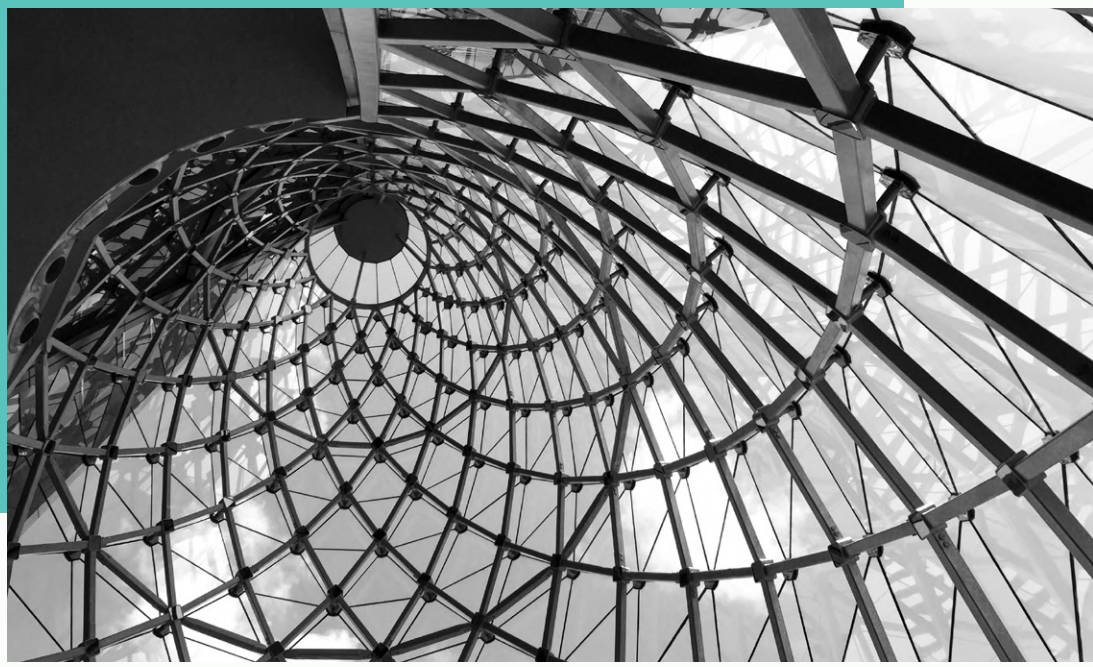
Compared to the early devices, modern radars are capable of determining many more aspects, such as the direction, distance, speed and velocity of objects, all based on the nature of returning echo signal reflected from their surface and further calculations. Such data is normally presented to the operator via a radar display in a graphical format that allows monitoring multiple target objects and their position relative to the radar at once.

As the Fraunhofer Institute for High Frequency Physics and Radar Technique writes, radar technology is mostly used to coordinate and monitor traffic as well as to help identify and prevent risks (FGAN-FHR, 2004). By a slight alteration, i.e. by replacing "traffic" with "projects", this statement becomes an apt description for a software solution that can successfully support project status reporting. In fact, the traditional radar together with the iconic appearance of a radar display constitute the conceptual framework that underlies RADAR as a useful project status tracking and reporting system.

Not unlike real air traffic control radar, RADAR simultaneously depicts numerous objects in a portfolio of projects in their progress toward a set goal and presents all relevant project status information in a succinct and well-balanced manner. Subsequent sections of this white paper describe the elements and features that make RADAR a truly effective solution for this purpose in more detail.

SYSTEM DESIGN

System Design



It is no secret that in an increasingly complex world the answer often lies in the reduction to the most essential. Difficult concepts and excessive requirements are more easily rejected and forgotten in today's fast-paced multitasking culture. And yet, it is important that in the general pursuit of simplification, things are by no means reduced any more than is necessary.

The great Albert Einstein is believed to have said that everything should be made as simple as possible, but not simpler, and it is precisely this idea that has guided the development of RADAR.

The design of the RADAR system is essentially based on utilizing a set of predefined project dimensions, or attributes, which help evaluate the project's progress and performance at any given moment of time. By collecting data from multiple different sources and information levels in a bottom-up process of reporting and aggregating them into selected project dimensions, RADAR puts together and systematizes dispersed facts, eventually presenting the most current and true status.

Similarly to how a location and movement of an object in space can be identified by its relative position to x-, y- and z-axes of an abstract coordinate system in a given frame of reference, a status of a project can be determined in relation to any one or a number of varying aspects (**Figure 1**).

When a negative change in one of the dimensions, such as an incomplete report, a lack of a management decision, or a delay in production, impedes progress or compromises performance, RADAR effectively acts as a powerful warning system, indicating where and when measures must be taken.

Depending on the business needs of an organization, project attributes that can be used as dimensions in RADAR may include, for instance:

Dimension 1 (project aspect):
Project type / Product category / Budget size / Cost / Risk level / Team resources / Priority

Dimension 2 (organizational structure):
Project manager / Business unit / Division / Location

Dimension 3 (progress):
Life cycle phase / Percent complete / Milestones / Month / Year

This list is only exemplary and not at all exhaustive. The actual structure can be customized in accordance with the individual use case and existing infrastructure.

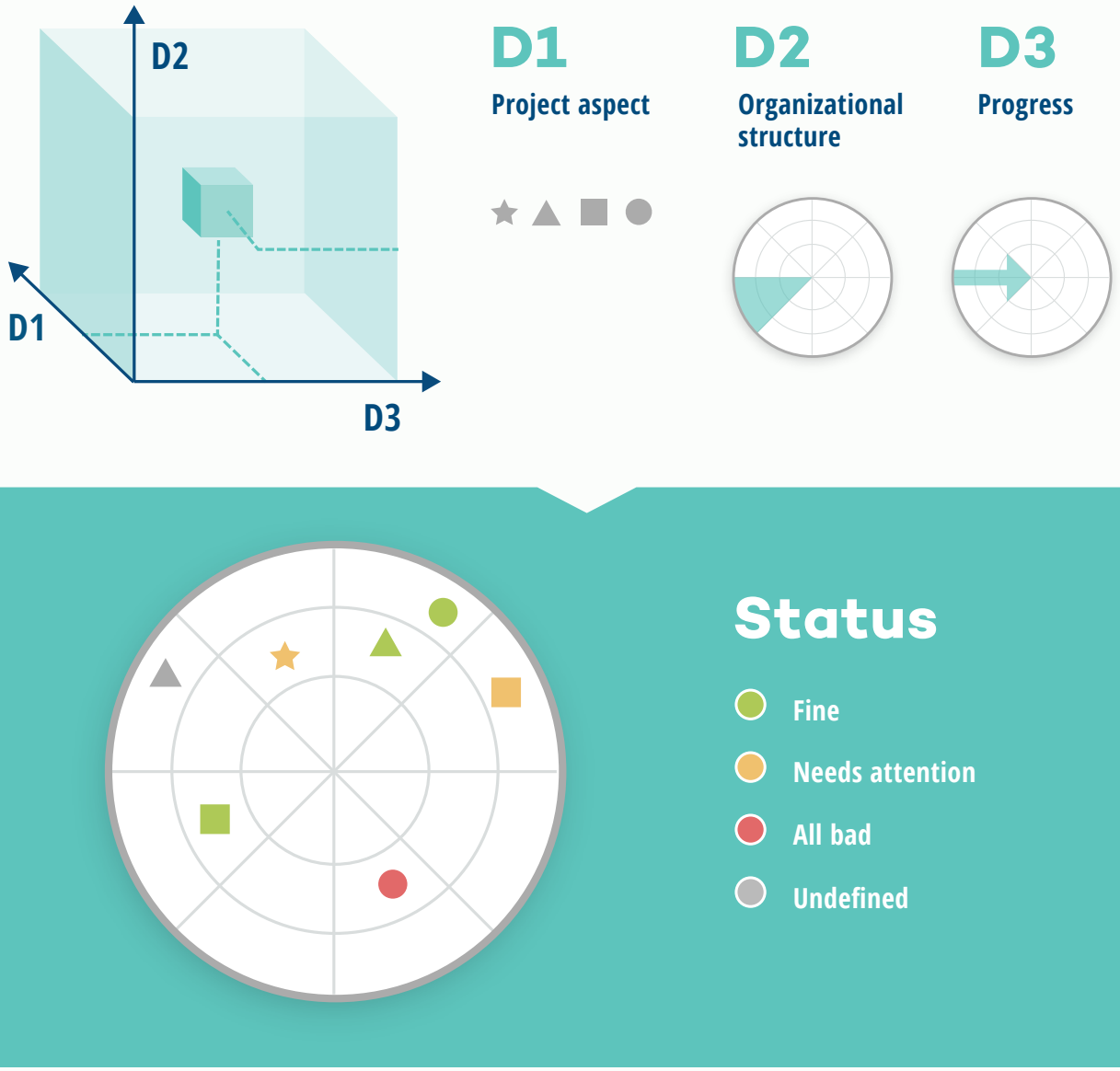


Figure 1. Multi-dimensional determination and depiction of a project status.

CORE FEATURES AND FUNCTIONALITY

Core Features and Functionality

Software development today is a continuous and dynamic process. Unlike in the 1980s or 1990s, a piece of modern software may be considered complete, but it is never ever really "finished". Yet despite the regular updates, revisions and improvements, there are elements that preserve the essence of any system throughout the iterative enhancement. This chapter is devoted to outlining precisely the features and functionality that together make up the core of the RADAR solution.

Fields

Each project attribute within the RADAR environment is specified as a distinct value in a separate data field. Such fields constitute the main building blocks of the system's principal features and are configured individually based on the requirements of a specific case.

In essence, the process of field configuration that takes place as part of the RADAR system setup denotes deciding, first, what specific data will be associated with the projects and, second, what data will be included in status reports. The former group concerns general project information, which primarily remains unchanged throughout the project, while the latter refers to data that is expected to be updated periodically. For added convenience and to avoid confusion, these fields are split between two different tabs in the Field Configuration section.

RADAR provides a catalog of field types to choose from, allowing to find the most appropriate format for each of the project attributes. Together with the ability to add as many fields as necessary, this ensures the level of flexibility required to replicate virtually any project organization and report structure.

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RADAR View

RADAR View is the central and most prominent feature of the entire system. Designed to resemble a real radar monitor used at an air traffic control center, its main purpose is to provide a high-level overview with regards to the progress and performance of numerous projects at once (**Figure 2**).

Intuitively comprehensible, it can serve both as a consolidated report on the status of the entire project portfolio, allowing to identify relevant developments and project interrelations in time, and as a gateway to the particulars of individual projects.

In general, all projects are depicted in the RADAR View as symbols. Their specific appearance and positioning on the RADAR are determined by a set of attributes indicating what the project is about, what is happening with it and when.

Different shapes of symbols point to distinct features of projects, such as, for example, their type, budget size, or product category. A symbol's positioning in a particular RADAR sector indicates a project's affiliation with an organizational unit responsible for its implementation, while color is intended to convey the current, or last

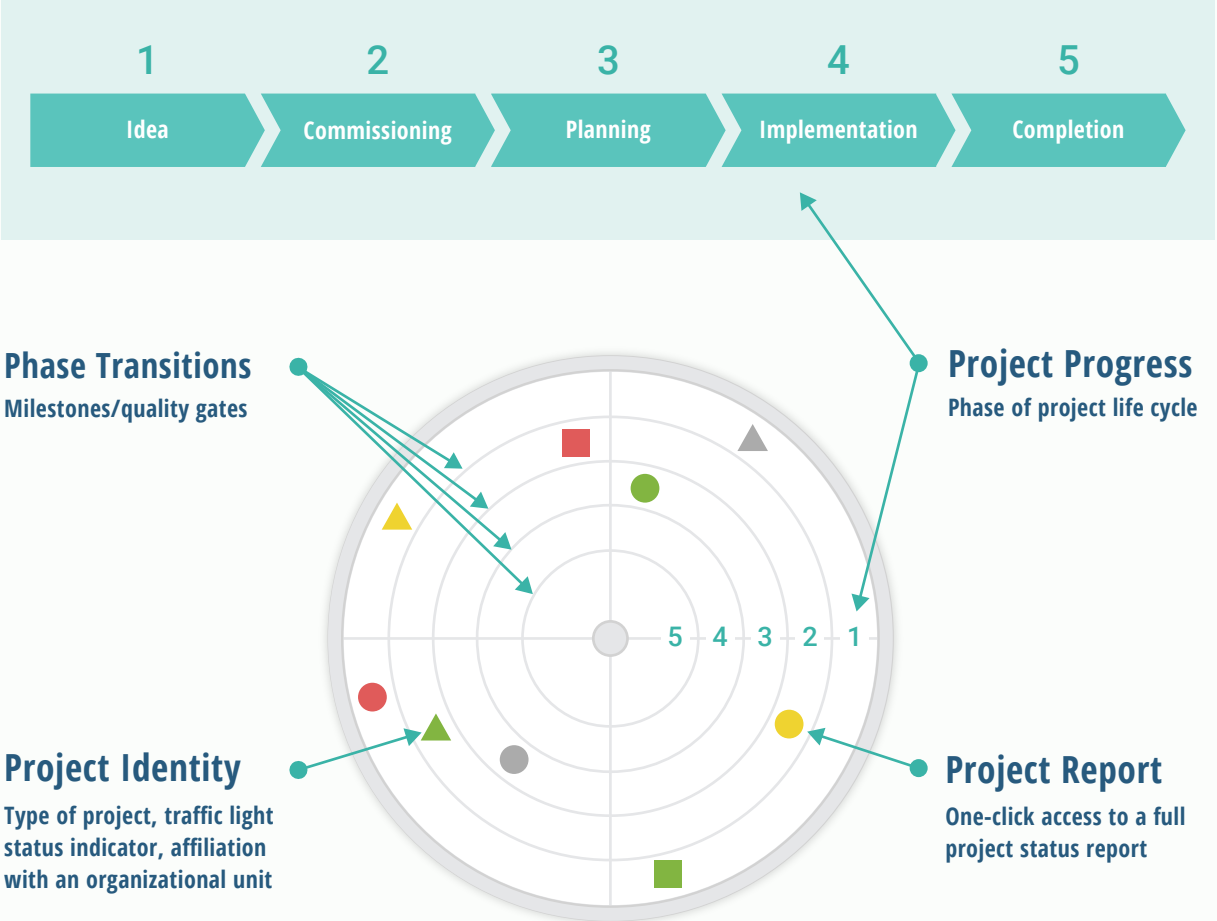

Figure 2. Principal elements of the RADAR View.

reported, project status. By default, RADAR employs traffic light color coding to signify the status of tracked projects. Although criteria that determine precisely what constitutes green, yellow and red depend on the specifics of every given project and are based on the standards that naturally differ from one organization to the next, such status rating has proven to be highly effective in communicating an immediate understanding of the situation at hand.

Additionally, if the status report has not been submitted on time or if the overall status has not been specified in the latest report, a project symbol is colored gray to make it instantly recognizable and attract attention of the relevant parties.

In what concerns a project's progress towards the set goal, it is reflected in the symbol's gradual movement from the outer edges of RADAR to its center, upon reaching which projects get archived. The RADAR rings stand for the phases of a project life cycle, while the moments of transition from one stage to another are denoted by quality gates or specific milestones, signifying that certain requirements must first be met.

In sum, RADAR View not only presents all essential information necessary for fast project identification and the assessment of its current progress and performance in a compact and easy to comprehend form, but also serves as a temporal framework for effective project implementation.

For instance, milestones, defined both in terms of deadlines and specific deliverables, help convey clearly and explicitly the structure, specifications and expectations of a given project. They also inevitably serve as points of contact between project leads and PMO or project leads and the steering committee, fostering regular communication and cooperation both inside project teams and with external stakeholders.

It is true that standardizing the phases of a project life cycle or milestones across projects of different types and scope within the same project-oriented organization is not always easy, but continuous efforts in this direction are highly desirable nonetheless. RADAR provides a solid foundation for this task, particularly by offering the opportunity to create as many differently configured Views as needed to accurately depict all projects added to the system.

Filtering and Sorting

RADAR's ability to accommodate a multitude of attributes and variable values associated with a single project naturally implies the need for filtering and sorting capabilities, which would allow users to make their way through large amounts of data.

To assist users, the visibility of columns in Project List can be toggled and the order of visible columns can be rearranged in such way as to allow for the most relevant information to come to the fore. Users can choose to show or hide projects from the list depending or selected criteria and various field values.

RADAR View offers similar filtering capabilities, allowing to segment projects and change viewing perspectives. Moreover, Mini-RADAR can be added to the main View as a means to visualize yet another project dimension. In such case, for example, the sectors of RADAR can represent different business units, while the shape of symbols could indicate the project type and Mini-RADAR could display the distribution of projects by production sites.

Intelligent filtering and sorting are virtually impossible without an advanced IT solution. In contrast, RADAR's functionality has proven to be effective in helping users make sense of all available information, especially when projects simultaneously running in the organization start to number in the hundreds.

Alternative Views

Although RADAR Views constitute the principal method of visualizing project data in the system, other possibilities are also available. For instance, users can choose for selected projects to be presented in a Tile View, as a Gantt Chart, or in a Bubble Chart.

Easily accessible from the sidebar menu, each of these options helps bring focus on a particular project attribute. Which aspects of the projects are assigned to various chart elements and accentuated – whether, for example, it is the volume of investment or the number of plants involved in manufacturing that determines the size of bubbles in the Bubble Chart – can be specified individually.

The change in the viewpoint facilitated through the alternative views helps bring to the forefront points and developments which may have not been apparent in the default RADAR View and uncover important insights.

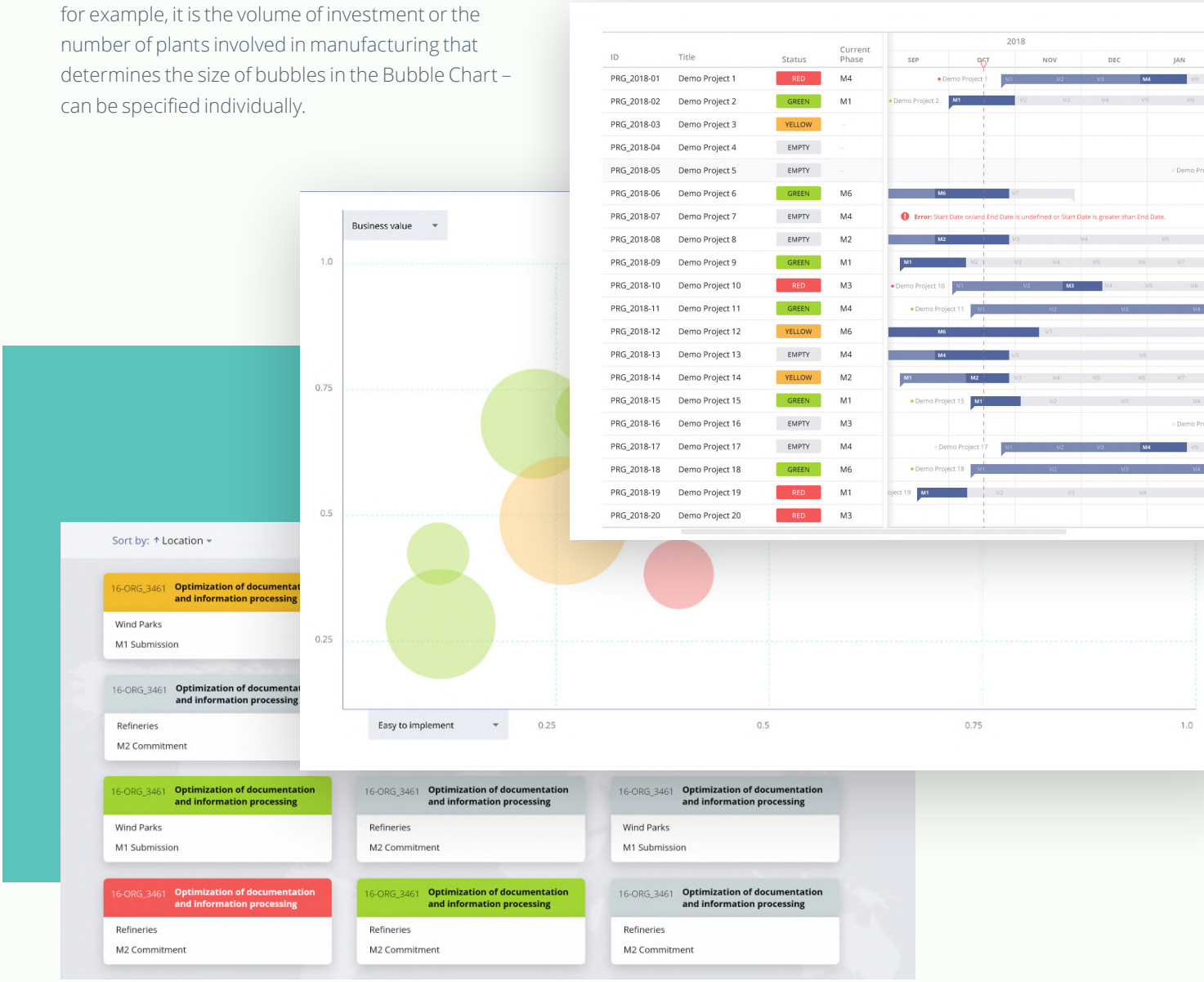

Figure 3. A selection of alternative views available in the RADAR system.

Project Status Report

All data associated with the project can be accessed by clicking a respective item in the project list. A detailed yet conveniently formatted panel that opens on click contains general project information and a link to all status reports related to a given project.

Additionally, the latest status report can also be accessed by clicking on a project symbol in the RADAR View, which allows for a quick transition from a general portfolio overview to a detailed review of a single project.

Project status reports are of major importance for successful project execution. They allow project leads and other reporters raise issues affecting their work, ask for clarifications or the necessary support – all in a timely manner.

For the senior management and the steering committee, status reports represent a key source of information about the actual performance of individual projects and act as an early warning system that points where and when an action is required.

With the above-mentioned in mind, the goal of RADAR as a tool that aims to support informed decision-making at the highest level is to ensure that status reports can be made sufficiently detailed, complete, consistent, and reliable.

To facilitate this, the system provides the opportunity to customize the precise structure of reports entirely according to the needs of a specific project organization.

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Anything from the number and type of mandatory and non-mandatory data fields included in the report to their allocation between different tabs and specific positioning on a page can be defined by the person responsible for setting up the system.

For instance, if one seeks to reduce the undesirable effects of possible biased reporting on the overall project status, multiple status indicators relating to different project attributes can be added to the report.

Or to make the reports more substantial, text boxes for providing commentary can be included as required fields alongside relevant content.

A template that is the result of such customization helps make the process of project status reporting simple and straightforward.

With expectations and requirements established and effectively communicated in a clear design and through added commentary or a supplementary legend to those who must meet them, one can safely expect that the end result will suit the needs of the receiving party in form and function.

Moreover, reporters can choose to release their status updates immediately or to save them as drafts and finalize later – a feature that further fosters a more thorough and thoughtful reporting.

Change History

One of RADAR's principal features is its capability to save all changes made to every single project submitted to the system. Accessible both from the project card and from within a separate tab of the latest status report, such log represents a complete account of data edits.

The system tracks and depicts the type of the change made, such as a document upload or an update in the data field, together with the name of the user responsible for it and the date and time stamps associated with every edit. This allows for any changes to be easily traced back to the exact moment they were initiated, thereby adding transparency to the project development and helping improve accountability.

For a similar reason, a full record of previously released status updates is also stored in the system. It enables project managers compare performance of their projects over reporting periods, facilitates constructive reflection on the project outcome, and eventually helps project participants and other stakeholders capture lessons learned.

Adding Data to the System

RADAR provides several options for adding project data to the system, which, depending on organization's individual requirements, preferences or established processes, can be used separately or in combination.

First, new and existing projects can be added and updated manually directly via the application's interface. Second, project data can be imported to the system using an Excel worksheet and advanced data mapping functionality. Finally, a range of integration possibilities can support seamless data transfer and automatic sync with a selection of systems used to track and record project data.

Manual data input

If an organization does not rely on any additional software to manage project data or if only a small number of projects need to be depicted in RADAR, the simplest way to add them to the system is to do so manually one by one.

A new instance of a project can be created by clicking Add Project button in the sidebar menu and filling in both required and optional data fields provided in the project template. The requested data may include such important project information as the title, project type or the company's department responsible for implementing it as well as numerous other relevant aspects, all specified in accordance with the general field configuration.

Projects that already exist in the system can just as easily be edited by clicking a respective item in the list of projects.

The structure of the project template, normally determined by someone in charge of the overall reporting process, e.g. the PMO, ensures that all projects of the same type added to the system follow the same logic, which helps preserve consistency of data and makes the projects themselves comparable.

Importing data from Excel

Data related to multiple projects can be imported to the RADAR system all at once using a single Excel file configured in a preferred format.

Before the data is uploaded to the system, a user is prompted to specify individual import settings, such as selecting the worksheet that contains required data and choosing columns to be mapped with the system's fields. To help with correct data mapping,

RADAR automatically analyses for any errors and lists inconsistencies in a report to provide the user with opportunity to correct any possible mapping mistakes.

The ability to transfer project data directly from Excel not only helps significantly simplify the tasks of the reporting function or anyone else responsible for managing large volumes of project data, but it essentially allows RADAR to work effectively with any external system capable of generating XLS, XLSX, XLSM, and CSV files.

Sharing and Access

To make sure that all relevant parties can be sufficiently informed even without having themselves registered in the system, RADAR Views together with the associated project data and status reports can be shared inside the system as well as externally via a web link.

In addition to general user roles assigned within the RADAR environment, which determine what projects and views are available in the Workspace, specific access rights can also be granted to selected users individually. This helps ensure the confidentiality of data and enables a faster and clearer system navigation.

RADAR's constant availability on the web means users with appropriate access rights can view, create and update project data and status reports on their mobile devices, whenever this is convenient for them.

Usability

For RADAR to be truly effective as a reporting system that contributes to better project status reporting, it is imperative that it is accepted and used by all parties involved in the process. Only this can guarantee that the system will eventually turn into a single source of truth for all project-related information, allowing for informed decision-making and strategizing.

To facilitate such acceptance and use, RADAR was designed to be handled intuitively and with as little training as possible even by users with moderate computer skills.

An at-a-glance depiction of project status using traffic light indicators and both metaphorical and actual similarity of the RADAR View with real radar help users instantly understand the system's internal logic and orient themselves within in.

In addition to standardizing appearance of views and reports and providing a consistent look and feel across the entire application, RADAR supports customization of its various interface elements in accordance with an organization's corporate identity. This helps provide users with a sense of the familiar and enables better recognition.

Furthermore, a number of features have been implemented to simplify and speed up user interaction with the system.

For instance, it is possible to clone items, such as data fields and views, while preserving their original settings and content. Drag-and-drop functionality is offered alongside the ability to browse one's computer for simpler file upload. And global and local view search are available to help traverse the large quantities of project data and to ease navigation.

Naturally, the design and features of RADAR and its individual parts are being examined and updated continuously. This helps keeping user expectations regarding the system's usability fulfilled and improves their overall perception of reporting processes.

APPLICATION POSSIBILITIES

Application Possibilities

Since no two company are identical in their project organization, the maturity level of project status reporting or the overall goals, RADAR from the start was designed in such a way as to be able to accommodate various situations in a targeted manner.

The resulting conceptual, organizational and technical flexibility together with extensive customization capabilities make RADAR easily adaptable to numerous business purposes, organizational structures, and unique processes in a variety of business contexts. **Figure 4** illustrates the diverse application possibilities of the tool.

For instance, companies often utilize RADAR in technology and innovation management as a means to visualize technology landscapes and depict the status of current developments. Such overview enables senior executives and portfolio managers to examine their strategic orientation and identify future trends and opportunities.

RADAR has also proven to be highly effective in supporting the product development processes following the Stage-Gate approach.

However, most companies employ RADAR for traditional project status reporting in their single-project management, program management, or in the project management office.

Experience shows that RADAR can successfully assist individual project managers and the PMO in establishing organizational structures for effective reporting, regardless of the maturity level of the organization's project management.

Project managers with little experience in multi-project management find RADAR to be particularly useful in the initial design of project status reporting, because the tool itself provides the basic organizational structures necessary for such processes.

When it comes to project-oriented organizations where systematic and professionally defined reporting structures and processes have already been established, RADAR helps significantly reduce the administrative efforts required for data collection, aggregation and transmission and improves the overall quality of project status reporting.

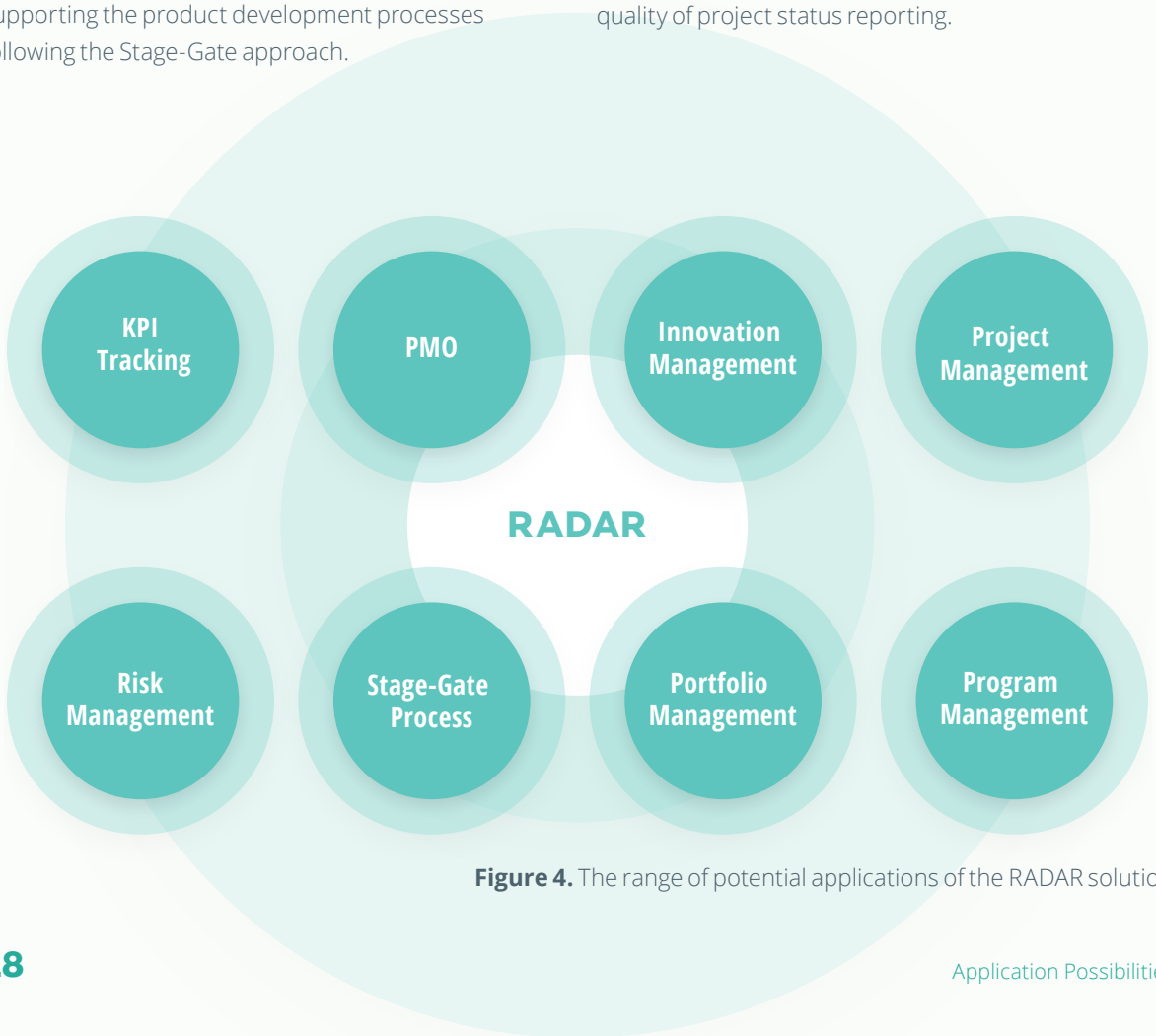

Figure 4. The range of potential applications of the RADAR solution.

CASE STUDY

Utilizing RADAR in the Project Management Office

The case study described here was inspired by a consulting project undertaken for an international multi-brand group. Initially aimed at the conceptualization and implementation of systematized reporting processes in the organization, it provides insight into how using RADAR can help tackle challenges associated with project status reporting, improve the work of the PMO and enhance performance of the company as a whole.

About the Client

The client on whose experience this case study is based is a corporation from the automotive industry with a classic organizational structure consisting of a head office, specialist functions, national and international production sites with business units and departments. An enterprise-wide project steering committee, comprised of board members, heads of departments and individual project and program sponsors, is responsible for monitoring the status of the entire project portfolio, ensuring projects are in line with the company's strategic goals, and deciding whether an intervention in a particular case is required. The task of the PMO within this structure, in addition to other duties, is delivering a consolidated report on the status of all projects and programs and any other decision-relevant information in time for the meetings of the steering committee. In this regard, the PMO is responsible for preparing analyses, commentary and forecasts and proposing potential alternative courses of action to assist the steering committee.

Initial Situation and Challenges

A multitude of stakeholders from various business units, production sites and hierarchy levels of the same company all take part in project status reporting – but do so at different stages of the process, which often makes it difficult to reconcile their interests. As the excerpts from interviews conducted with different parties clearly demonstrate (**Table 1**), they each have their own point of view on the matter.

It appears that all actors involved in reporting are dissatisfied because their expectations regarding project status reporting are currently being met either insufficiently or not at all.

Project managers complain about the amount of effort it takes to fill out status reports and the need to do so regularly, all the while the PMO expresses discontent with poor reporting discipline, late submissions and the low quality of collected data.

Members of the steering committee, in turn, feel that they are not being adequately informed. Not only are the reports that they receive excessively long and generally inconsistent, but their preparation is so laborious that by the time they reach key decision makers, project status information has already lost its relevance. Instead, senior managers wish to be able to access reports at any time and regardless of their own whereabouts, preferably via a self-service tool on their mobile devices.

All in all, it is evident that inefficient and complex information flows not only hinder effective communication and cooperation but also negatively affect the development of projects. This points to an urgent need to improve the quality of reporting by increasing efficiency of existing processes, introducing some degree of standardization and automation, reducing the share of the time-consuming ad hoc reporting, and simplifying distribution of project information.

Information Provider	Reporting Function	Senior Decision Makers	
Project Manager	**PMO**	**Member of Steering Committee**	**Member of Management Board**
„Filling out status reports is too complicated and time consuming. My project is under control and I don't see how I would benefit from reporting the process of my project all the time. If something is the matter, I will notify the people who need to know about it."	**„I have to remind people all the time to hand in their status reports or to fill in the missing information – the result is that I can never submit my reports to the board on time and the data is never 100% accurate."** **"Three days before the deadline for sending the consolidated status report to the board, the PMO is basically shut down."**	**„We don't know what is happening in the projects and we have no idea where to intervene – we're basically flying blind."**	**„Could you please provide the missing data on page 278 and comment on it? It would be helpful if a comprehensible status report would be available after the summer break."**

Table 1. Project status reporting from the perspective of different stakeholders.

Results and Benefits

RADAR was employed by the client's PMO as a supporting tool for both regular and ad hoc project status reporting. As a result of implementation and subsequent use, the client has reported to have derived the following benefits:

Systematized reporting processes

The process of adapting RADAR to internal structures of the project-oriented organization requires careful consideration, clear definition as well as documentation of company reporting responsibilities, goals and schedules. This alone sets a strong foundation for a stable reporting framework, where everyone knows what is required and when. Additionally, by formalizing various elements of reporting it becomes possible to instill some degree of standardization, thereby allowing to automate at least part of reporting tasks.

Better reporting discipline

Intuitive understanding and handling of RADAR combined with explicitly structured report templates that clearly convey what precise information is expected of the reporter make reporting processes fast and straightforward, and thus eliminate unnecessary obstructions that may prevent reporters from fulfilling their duties. Furthermore, automated notifications help ensure that project managers fill out and submit their reports in time, while overdue or incomplete reports are marked in a distinct way that draws attention and thus fosters even better adherence to the set schedule.

Improved data quality

Another consequence of systematically defining goals and specific requirements in the course of setting up RADAR is that information requested and subsequently included in reports becomes consistent and, therefore, comparable. It can be filtered, sorted and visualized in different ways, allowing to find answers to the posed questions. And improved reporting discipline ensures that that it also up-to-date.

More time for contextualization and commentary

By automating reporting processes that would normally require a lot of time and effort, RADAR leaves the PMO with more time to contextualize and comment on the received project information. Various filtering, analysis and visualization functionalities, automatic data importing capabilities from Excel and a number of upstream systems are all available to assist the reporting function.

Regained sense of awareness and control

With the RADAR system available on any platform and device, senior managers do not have to wait for scheduled reports and can instead access it anytime via the web browser of their choice. Up-to-date information on current project or program status always at hand in an easily comprehensible format of the main RADAR view enables them to make informed management decisions wherever they are.

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ABOUT RADAR

RADAR is a project tracking and status reporting solution that provides complete visibility into company's project portfolio and a one touch access to a detailed project overview. RADAR streamlines reporting processes, fosters collaboration, saves administrative effort, and ultimately allows for informed decision-making at all levels.

ABOUT GET IT

GET Information Technology is an international management consulting and software engineering company. GET IT supplies clients across industries with solutions designed to support project, resource and portfolio management, post-merger integration programs, operational efficiency and cost reduction initiatives, as well as the implementation of major engineering projects.

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