

# Enhancing Engineering Project Portfolio Management & Accelerating Digital Transformation in the Aerospace Industry

CASE STUDY | Project Portfolio Management



# Enhancing Engineering Project Portfolio Management & Digital Transformation in the Aerospace Industry?

## Industry

Aerospace Engineering

## Size

500+ employees

## Location

Pretoria, South Africa

## Specializing in

Aviation Manufacturing

*“For me Kanban is a very good method that Businessmap supports and is superior to the other tools out there, but if you don't have a change agent that understands people and the importance of creating relationships to transform the business, you will have a challenge on hand”.*

Johan Pretorius,  
IT Group Leader in Aerosud

## Introduction

Aerosud Holdings Ltd. is an internationally recognized manufacturer of aircraft parts and assemblies from South Africa. Established in 1990, over the years, Aerosud has strengthened its positions in civilian and military aviation, becoming a supplier of OEM aircraft brands such as Airbus, Boeing, BAE Systems, etc.

With the goal of remaining a smart supplier to some of the world's largest aerospace corporations, Aerosud continuously innovates its manufacturing technologies. Other than investments in Research & Development, this requires flexible work processes that answer the demands of today's volatile business environment. Together with the business requirements to deliver faster, Aerosud embarked on a continuous Lean/Agile journey.

We spoke to **Johan Pretorius, Aerosud's group IT leader**, to understand how they support their journey with the help of Kanban and Businessmap.

## Initial challenges

Aeronautical engineering is one of the most regulated industries in the world which deals with very fixed processes. Just from a compliance point of view, this creates a huge challenge to make significant process improvements. However, that usually means sticking with legacy work management systems for a long time and failing to adopt business agility in terms of service delivery, better decision-making, and meeting customer expectations.

This was exactly the case with Aerosud.

Using old work management systems contributed to misunderstandings about the main business priorities. The decision-making processes suffered due to a lack of a holistic view of the actual work in progress across the company. This caused poor communication between teams which eventually decreased their morale.

One of the main challenges that initially sparked the idea of adopting Lean/Agile was the slow response rates within the IT services area. Using a traditional ticketing system was good enough for servicing the customers' requests but not for managing the flow of work. Due to the lack of work transparency, the IT area had problems with communicating expectations upfront, setting clear priorities, and escalating issues to the right stakeholders.

Meanwhile, the IT support team was experiencing a constant push by management to process more requests. This increased the load on capacity and made people feel stressed out as they couldn't cope with the incoming demand.

At this point, Johan knew that something should be done to speed up the processes within the IT area while keeping costs and capacity levels the same. Eventually, he came in touch with **Xuviate (business agility consultants)** and together they initiated an ongoing journey toward flow management through the **Kanban method**.

## Doubling the Throughput for IT Service Management (ITSM)

Before diving into Kanban, the IT group first focused on creating standards for prioritizing their work. They turned to the **Eisenhower Matrix** which is a method for prioritizing work items based on their urgency and importance.

After setting a prioritization standard, Aerosud's IT area implemented physical Kanban boards on an individual level. The idea was to simply visualize everyone's work with the help of colorful stickies and track its flow. Combined with the Eisenhower Matrix, the IT group found a way to check everyone's capacity and better communicate whether certain requests are more important than others.

Still, Kanban is much more than just sticky notes on whiteboards, so Johan Pretorius gave the team a quick crash course on the method to promote the adoption of other practices. As a result, one of the most important takeaways was that high-levels of Work-In-Progress contribute to longer cycle times (based on **Little's Law**) which made the team agree on limiting WIP on every individual board. They also visualized their impediments and started engaging in daily stand-up meetings.

**Tip:**  
*Regarding continuous improvement, the IT teams committed to weekly retrospectives and used practices such as "5 Whys" to find the root cause of a problem.*

### Key Results

Just by doing the above, the IT service area unlocked the visibility of their process and embraced the idea of "swarming" where people would help each other deliver more work. Combined with the WIP limits, the IT group doubled their **throughput from 60 to around 120 tickets within 3 days!**

## Detaching From the Physical Boards

Even though the improvements after such a short period of time were astonishing, the limitations of the individual boards soon became obvious.

For example, there was no way to create an automatic integration between Aerosud's IT systems and the actual workflow. Another challenge was accurately measuring the process performance which was done manually in Excel spreadsheets.

Meanwhile, to achieve true business agility, Johan realized the need to scale the adoption of Kanban across multiple departments and promote digital transformation. This aligned with the start of the COVID-19 pandemic which opened up an opportunity for the Engineering department to attend online Kanban training through **Xuviate's Kanban Bootcamp** ([www.xuviate.com/bootcamp/](http://www.xuviate.com/bootcamp/)).

The result was the introduction of advanced Kanban practices such as "STATIK" and "Flight Levels" (explained below). The only missing part was the appropriate solution to support those practices including automation and real-time reporting.

This is where the Businessmap Software Platform comes into play.

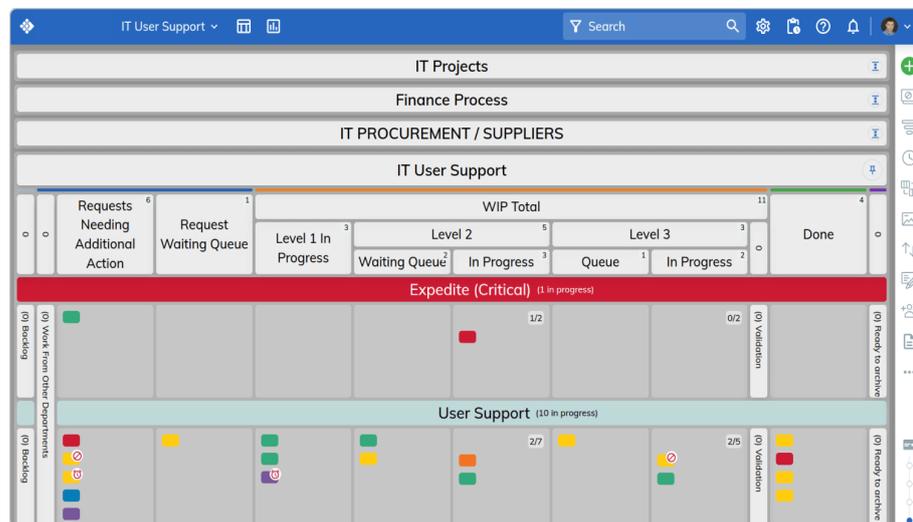
## Extending Flow Management Across The Company

After getting deeper into Kanban, Aerosud nowadays implements flow-based practices across multiple departments with the dedicated work management solution by Businessmap. Here we should point out the importance of having change agents within the company who don't just advocate for the method but see the entire implementation as a continuous improvement journey rather than a one-time endeavor.

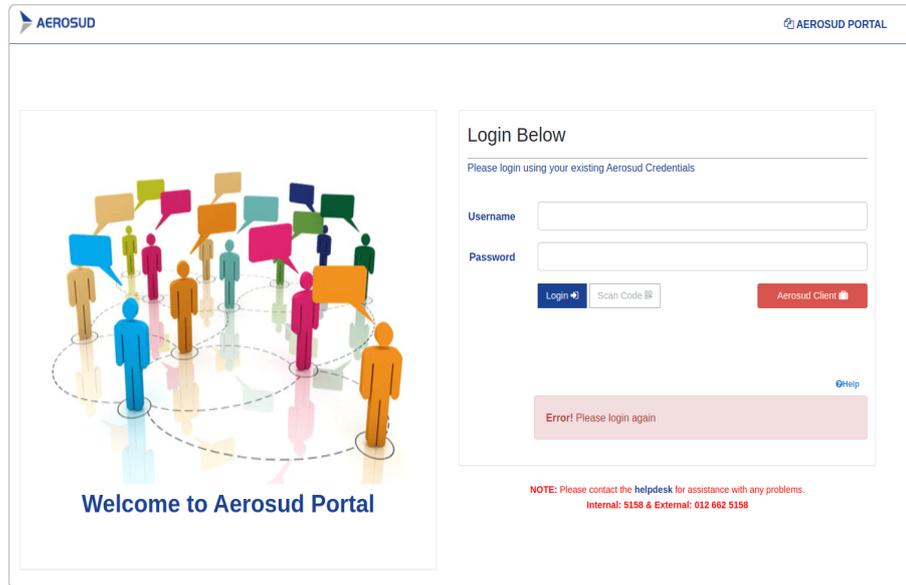
Having said that, let's take a look at how Businessmap helps Aerosud manage engineering flow across the company.

## Managing IT Service Delivery & Automating Workflows

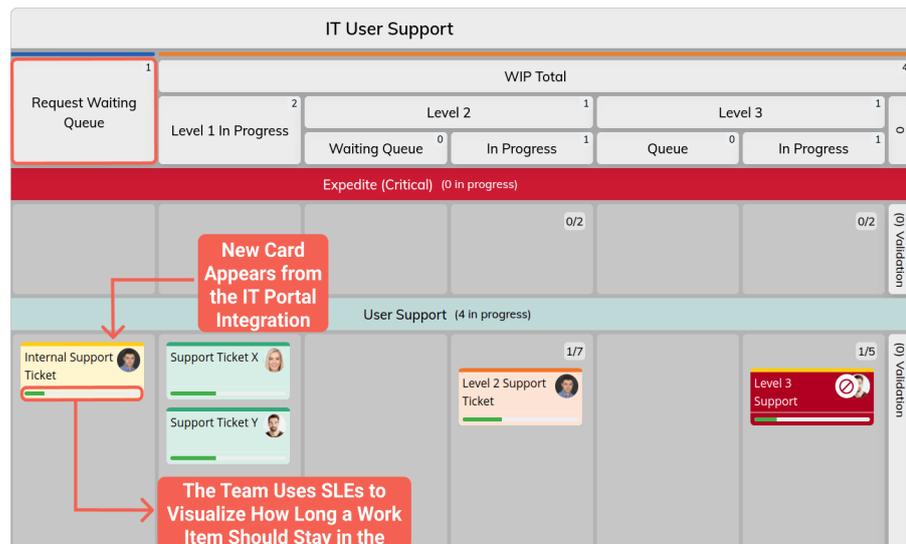
After going through the Kanban Bootcamp and iterating on a few versions of a digital board in the Businessmap Software Platform, the IT group visualized multiple team workflows on a single board. One of those is the internal IT support workflow that consists of 2 lanes: **User Support** and **Expedite** including multiple columns, representing both committed and work in progress.



To automate the incoming demand, Aerosud's IT group used the **platform's API** to integrate their workflow with an external IT service desk portal. Based on the information that a user fills in the portal, the integration creates a Kanban card with a specific template that contains detailed information about the work at hand. This involves everything from the name of the user who requests the work, to its expected delivery date and priority.

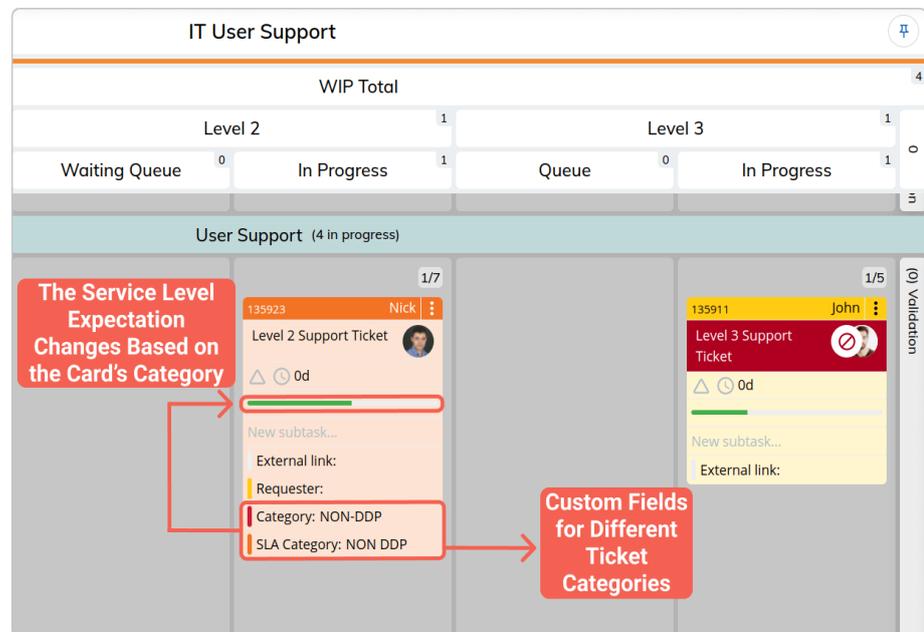


To visualize this demand, every request automatically moves from the IT Service Desk portal to a specific “Queue” column on Aerosud’s IT board. This action triggers one of the software’s **automation rules (“Card is Created”)** on the “Queue” column that populates predefined **custom fields**. The internal support team also utilizes the **SLE (Service Level Expectations) feature** to visualize a target of how long each request should remain in the queue.



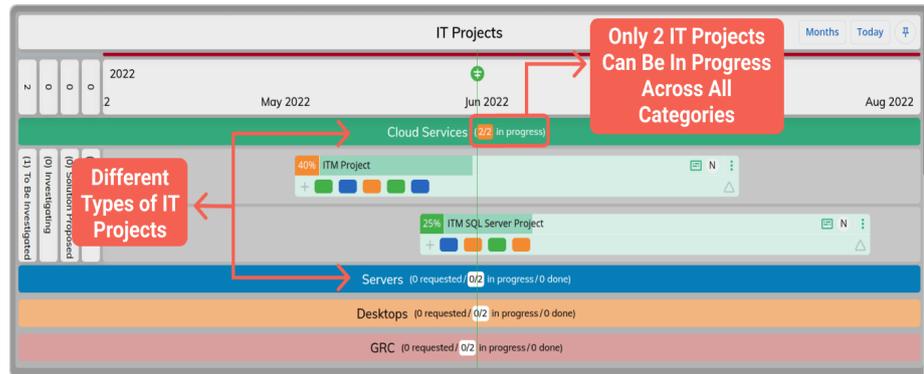
The WIP part of Aerosud's IT board depicts the entire process for servicing requests which is divided into 3 Levels of support. Whenever someone needs to escalate a ticket from Level 1 to Level 2, they need to place it in another "Waiting Queue" which informs the higher support level to prioritize this work first.

Furthermore, by combining the SLE feature with **custom card fields**, the IT team has defined different service delivery categories. Based on the ticket's category (ex. Due date or non-due date performance), the software dynamically visualizes a specific cycle time target for the work's delivery.



## Managing IT Projects

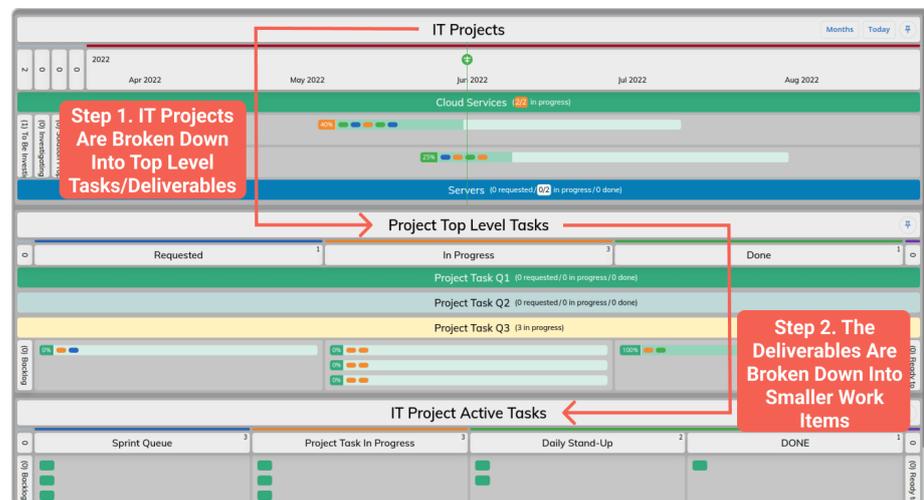
To take this transparency further, Aerosud’s IT group utilized multiple workflows on boards to visualize smaller and larger work items in a central place. They created a **timeline workflow** that helps them track the progress of internal IT projects for different categories (servers, desktop, cloud services, etc.).



From the timeline workflow, the relevant IT experts break down each project into smaller parts using 2 other separate workflows: “Projects Top Level Tasks” and “IT Project Active Tasks”. This is done through the **parent-child link capabilities** in the software.

**Tip:**

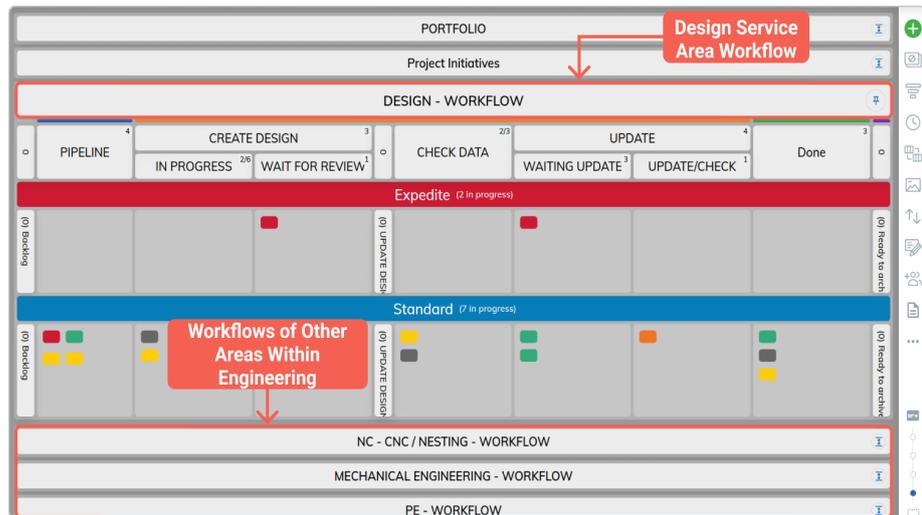
*The parent-child relationship allows the creation of hierarchical work structure. With its help, users can break down big pieces of work into smaller chunks.*



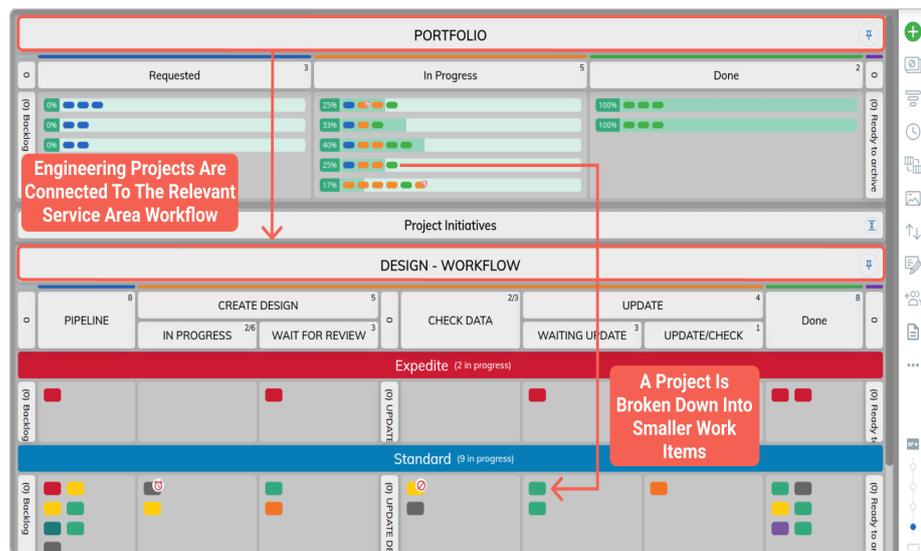
## Initiating an Engineering Project Portfolio Management Implementation

After gaining transparency within the IT department, Aerosud decided to apply flow management for projects in Engineering. Going through several board refinements and **STATIK\*** exercises, the Engineering department implemented a board that visualizes the workflows of different service groups – Design, Mechanical, CNC, Professional Engineering, etc.

*\*STATIK (Systems Thinking Approach to Applying Kanban) represents a model for analyzing a system's capabilities and introducing Kanban.*



To visualize its portfolio of team projects, the Engineering department added a specific “Portfolio” workflow on top of the board. There, they use a certain naming convention to define which service area every project relates to (ex. PE, CNC, Design, etc.). Consequently, every team project is broken down into smaller work items which go through the workflows of a given service area.



## First Steps Toward Flight-Levels

The “Portfolio” workflow on the Engineering board was not enough in terms of visualizing a high-level project’s end-to-end flow. That’s why Aerosud integrated its pre-existing critical chain planning process with the Businessmap software platform. In other words, Aerosud’s program office plans projects and “injects” them into the Businessmap software platform through an **Excel integration** to track their execution across the entire company.

To make this possible, the management turned to the “**Flight Levels**” concept by Klaus Leopold.

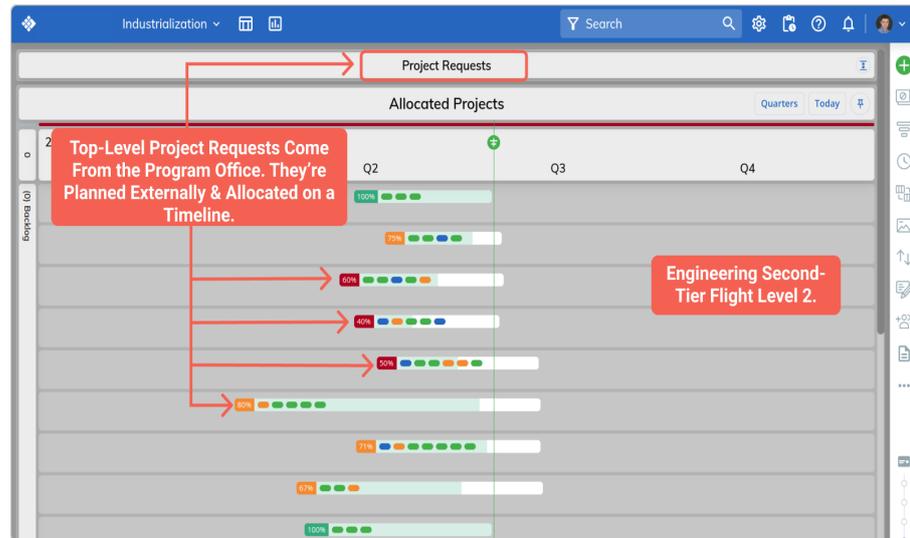
### What is Flight-Levels?

*Flight-Levels is a business agility concept by Klaus Leopold.*

*It describes the idea of visualizing 3 organizational levels to improve the flow of work across the company.*

*Those levels represent: organizational strategy (Lv.3), coordination between teams (Lv.2) and day-to-day operations (Lv. 1).*

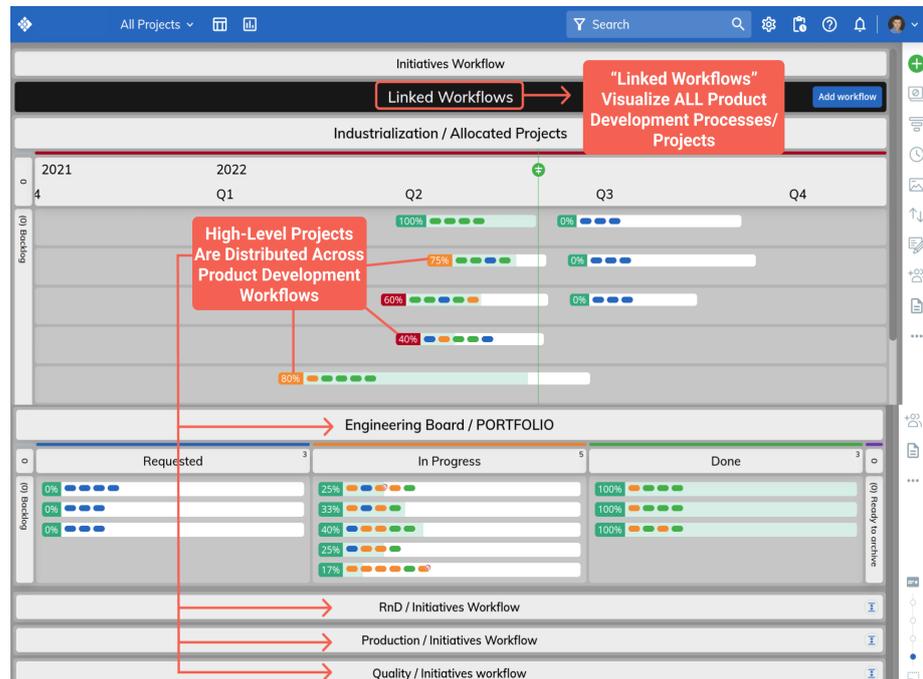
The Engineering department created a separate “Industrialization” board which serves for visualizing top-level project requests. In a nutshell, the board currently represents **a second-tier Flight-Level 2 (the plan is to have a full-fledged Flight Lv. 3 soon)** which displays the top-level product development planning process in Aerosud.



Once there is capacity for a high-level project to move in progress, leaders from different departments allocate the pre-existing work breakdown structure across departmental workflows. For this purpose, Aerosud created a “**Management board**” which serves as a collection point for all projects and their lower-level departmental deliverables. The board serves as a **first-tier Flight Level 2** where managers coordinate product development work.

### **What is a Management Board?**

*The work management software by Businessmap allows users to create Management boards within a Management workspace. The boards represent a central hub where project or portfolio managers can track the execution of multiple projects, products, initiatives, or other big pieces of work across teams.*



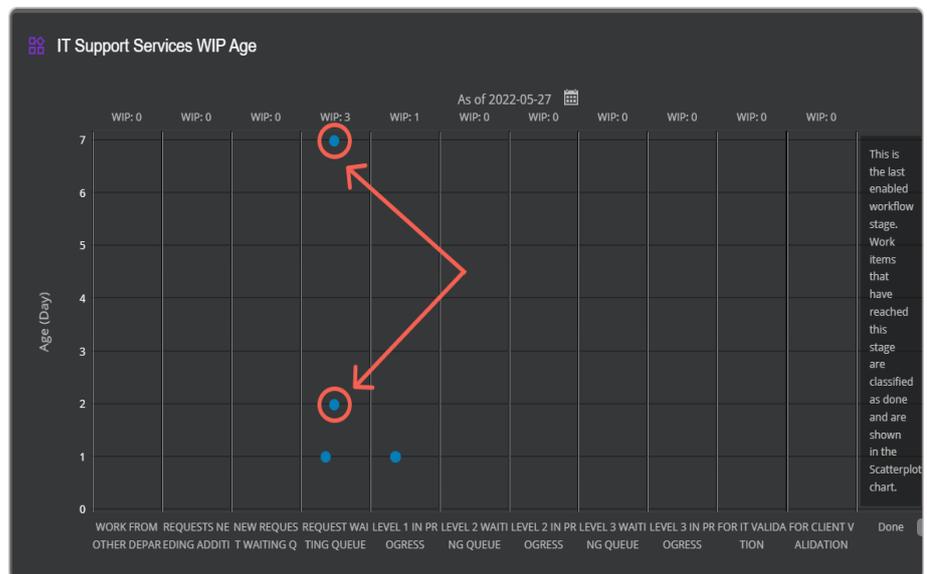
In general, every single high-level project is broken down into smaller departmental projects (**ex. the projects inside the Portfolio workflow on the Engineering board**). Then, the actual execution of the work activities (Design, Mechanical, CNC, etc.) represents Aerosud’s operational **Flight Level 1** that visualizes the continuous delivery of product development work.

## Measuring Performance, Key Results & Integrating Power BI for Capacity Planning

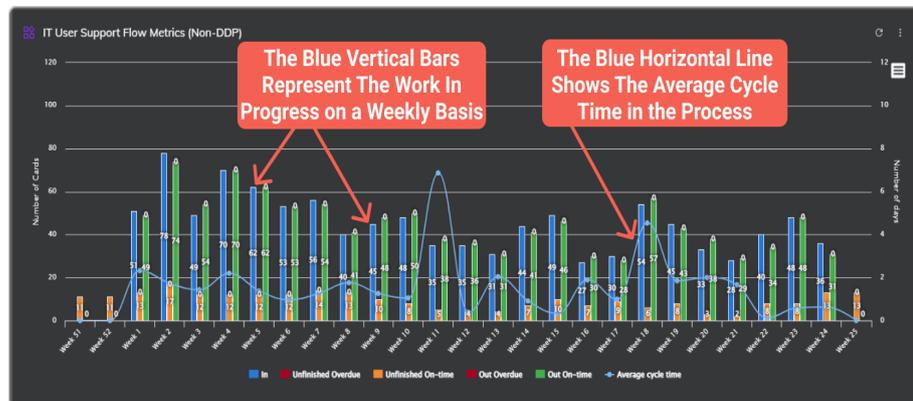
Even though the flow management implementation at Aerosud has matured significantly since its beginning, leaders knew their ongoing Lean/Agile journey would be incomplete if they didn’t have the means to measure it. That’s why Aerosud turned to the **Analytics capabilities** in the Businessmap Software Platform including a **Power BI integration** which we will showcase below.

## How Aerosud Tracks & Improves IT Service Delivery?

Within the IT group that deals with internal support, one of the important analytics that Johan Pretorius found helpful was the **WIP Aging chart**. In a nutshell, the team uses it on a daily basis as part of their stand-up ritual to gauge whether there are specific work items that have stalled. The IT support experts set a specific cycle time target on the chart which makes the blue dots (representing cards/work items) blink if they exceed a specific cycle time target. **This way, both Johan and the team can now engage in a collaborative discussion on what is preventing those work items from moving forward and what can be done to correct that.**



Moreover, for tracking the actual cycle time and throughput of IT tickets (non-due date performance category), Aerosud used the **Board Flow Metrics widget**. With its help, they were able to measure their WIP over a specific time period, average cycle times, and support tickets that were finished on time or were overdue. One of the major business requirements for the IT support team was to deliver to customers within **no more than 3 days**. Since implementing **process automation and visualizing the entire IT flow**, the team has stabilized their response rates to fit within those time constraints while gradually decreasing the active WIP in the system.



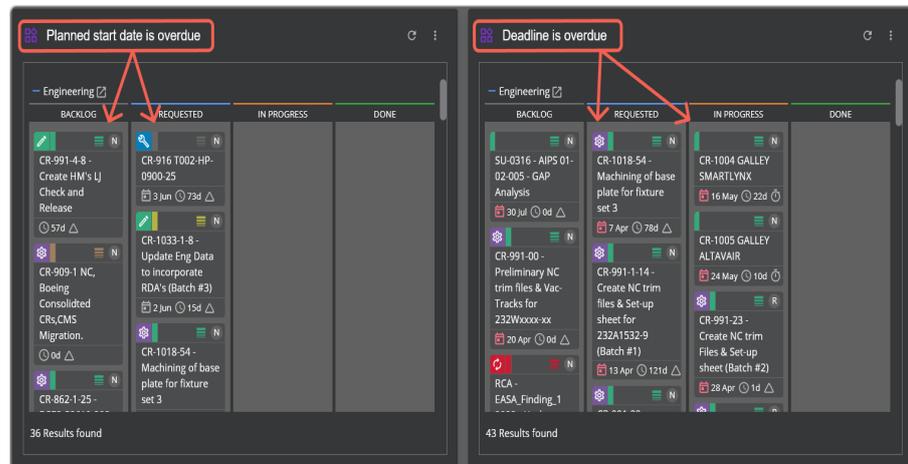
Another important metric that the IT group started tracking was their capacity allocation across team members. To do this, the team started logging time for each IT expert. As a result, they extracted real-time data from the software and integrated it with **Power BI** to create powerful visualizations inside the digital management system. The result was a powerful report that tracks the team's capacity load in terms of hours logged on a weekly basis.



The major key result here is that Aerosud’s IT group gained a holistic view over what work each team member spends their time on. For example, they can now gauge the capacity allocation of the whole team for a given month and see whether specific users were busier handling IT support tickets whereas they should’ve spent more time on IT projects. This gives the entire IT group a point of discussion during their retrospectives so they can analyze their capacity and plan what can actually be done within the department.

### How Aerosud Tracks Project Flow & Plans Engineering Capacity?

Moving to the Engineering side of the implementation, the departmental managers started tracking the projects which are not started and finished on time. This happens with a specific “Overdue Cards” widget that allows managers to gauge the effectiveness of their planning efforts.

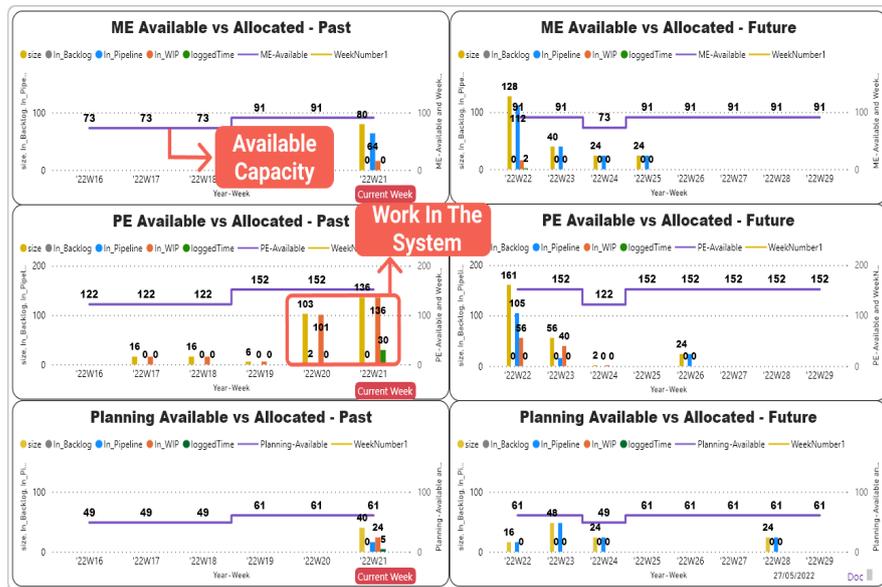


The main key result here is that Aerosud’s Engineering department can now inspect the projects from their portfolio whose deadline is overdue while they are still not finished.

This way, management gains a view of which projects become critical, so they can allocate capacity accordingly. Meanwhile, the analysis of projects with an overdue start date opens up discussions for the improvement of the company’s product development planning process.

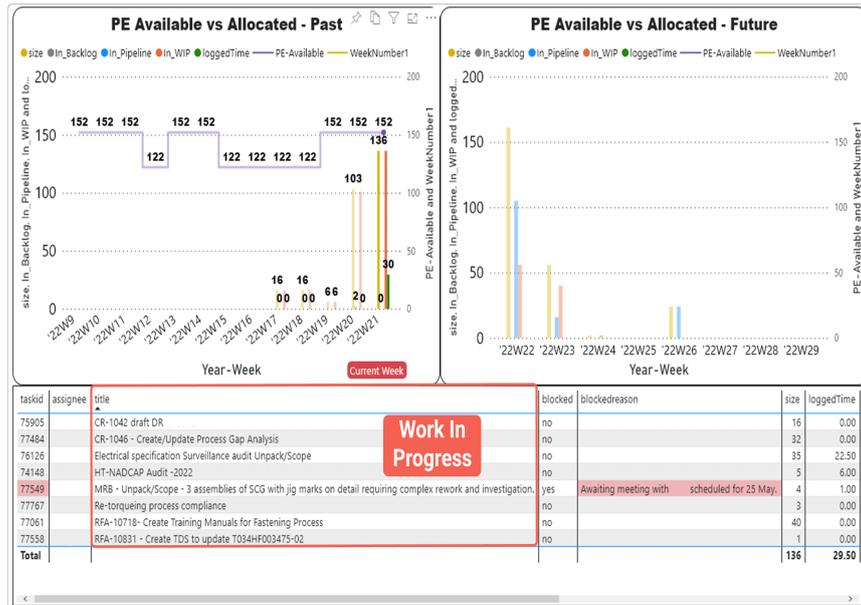
In terms of capacity, Aerosud used the **Power BI integration** the **Businessmap Software Platform** across their Engineering department too. With its help, they created reports that allow them to plan capacity for Engineering work processes.

For example, they created Power BI reports for every service area (Design, Process & Mechanical Engineering, etc.). Each one of them looks at the past and future available vs allocated capacity per a given period of time.



The vertical lines on the reports pull data directly from the software and represent the actual work in the system (in the backlog, at a commitment point, or in progress). The horizontal lines visualize data in hours from an external capacity planning spreadsheet that service area leaders manage.

Drilling down into the report of a specific service area (ex. **Process Engineering**), managers can also see the work items within a particular process stage (ex. **Work-In-Progress**) and quickly examine if there's anything holding them back (such as blockers).



Due to the Power BI implementation, Aerosud's Engineering department enabled:

- Engineering managers and team members to track the available capacity for each service area (in hours) based on the current work in the system (which is measured in size).
- Faster decision-making within the department because of the awareness of leaders where they can pull capacity from and allocate to critical projects/initiatives.

## Future Plans & Key Takeaways

It's safe to say that Aerosud has come a long way since the individual physical boards or their legacy work management systems.

And yet... the company is gradually advancing on its ongoing journey. Some of Aerosud's future plans include maturing the Flight Levels implementation and visualizing business strategy which should be connected to top and lower-level projects across departments (Flight Level 3 as described by Klaus Leopold).

Other than that, Aerosud will be looking to further expand the work management solution implementation across more departments in the company. There are still many processes that the company wants to optimize, automate and eventually report on using the built-in metrics together with the Power BI integration.

***But of course, none of that would be possible without the continuous improvement efforts from change agents like Johan Pretorius and the ongoing support from Xuviate's consultants.***

## Key Takeaways

While Aerosud's journey continues to this day, let's take a look at some of the key results they've accomplished so far:

- Built a clear workflow structure through interconnected Kanban boards across departments.
- Initiated digital transformation within the company's key business processes.
- Improved decision-making due to holistic work management transparency and aligned team with business priorities.
- Collected data (impossible to measure with the physical boards) and improved planning efforts.
- Gained capacity planning & allocation capabilities through integration between the Businessmap Software Platform and Power BI
- Enabled real-time reporting across key workflows that help teams continuously improve.

## About Xuviate



One of the most common business challenges these days is that important work and particularly projects and change initiatives take forever to complete and outcomes often fall short of the envisaged business value. What makes this even worse is that most leaders feel powerless to do something about it, despite spending lots of effort on project- and people management. It just feels like a bad movie that goes on and on.

At Xuviate we provide online training and coaching for leaders on how to reimagine their workflows, thereby leading to substantial performance gains and teams that everyone loves working with. When leaders receive the support and guidance they deserve, team and business performance skyrockets.

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## About Businessmap



Businessmap is an Enterprise Agility solution provider aiming to discover new management ways and share this knowledge through amazingly powerful, easy-to-use tools and professional services.

Businessmap offers the most flexible software platform for outcome-driven enterprise agility. Its unmatched functionality consolidates multiple tools into one, enabling affordable deployment at scale, visibility across all projects/portfolios and alignment on goals, to deliver quality work faster. Pairing it with the proprietary consulting program delivers a tailored solution that ensures lasting value and exceptional ROI.

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