

DRA Global: implementing digital transformation through change management in a project consultancy firm

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Case summary

Learning outcomes: After reading and discussing the case study, students should be able to identify the reasons why the company needed to digitise and how this links to the company's strategy around technology and innovation, analyse the digitalisation implementation process followed in the case study by using an organisational change management model and make recommendations and propose a solution for the protagonist to consider for the successful roll-out of the digitalisation project.

Case overview/synopsis: DRA Projects is part of the DRA Global business based in South Africa. The company is known locally in the mining and engineering industry for its project development, delivery, execution and operations capabilities. Digital transformation is a key strategic focus in the industry, as clients seek digitised integrated systems. For this client offering, J.C. Heslinga, managing director of DRA Projects, was tasked with leading the digitalisation of the project delivery system. From July 2020 until July 2022, Heslinga led the implementation team through different organisational change stages. As the next phase included rolling out digitalisation to pilot projects and engaging employees and clients in the new process, Heslinga wondered if enough was done to ready the business for this change. The end users would be executing the changes, so their adoption will be imperative for successfully rolling out digitalisation. The case study concludes with Heslinga pondering the approach needed for the next phase. The case study focuses on the digitalisation implementation process through the lens of organisational change. The case study presents an opportunity to analyse and identify the theories and models used in organisational change within a real-life business context. The organisational change learnings can be adapted to help students with any transformation changes in similar business scenarios.

Complexity academic level: Postgraduate- and master's-level students and business executives attending short courses will benefit from the learnings. The learnings can be applied to improve decision-making, organisational behaviour and strategic implementation using the fundamental principles of organisational change.

Supplementary materials: Teaching notes are available for educators only.

Subject code: CSS 6: Human resource management

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It is a harsh realisation to know that we have now entered the space of competing in a digital world, and if we are not going to make a change, then we are going to become more and more irrelevant.

J.C. Heslinga [1]

As the final streams of sunlight dwindled on a winter afternoon in July 2022, the workday for J.C. Heslinga, managing director of DRA Global, EMEA [2] (Europe, Middle East and Africa) region, was still far from reaching its end. He had missed the scheduled time in his diary to prepare for the user acceptance phase “pause and reflect [3]” session with the project digitalisation team. As he strolled back to his office, his mind became a whirlwind of thoughts about the digitalisation project, pondering the past two-year journey. Where had it begun, and how was it progressing so far? What was the mindset of the digitalisation team? Were they adequately prepared for the next phase?

Since July 2020, Heslinga recognised that the digitalisation project was more than a typical engineering project. Despite its technical nature, it was apparent that effective people management would be the project’s cornerstone and also the heartbeat of this project. Transformation often faced resistance when people feared the unknown, which was why crafting a compelling vision of a prosperous future was vital to secure buy-in from all stakeholders, including the end users. The digitalisation project’s success – its design, development and implementation – hinged on the workforce, making their involvement and dedication critically important. Despite the challenges encountered, the planning, scoping, design, development and testing phases thus far had been well executed.

The imminent phase involved deploying the system to three pilot projects. The critical nature of this stage had Heslinga contemplating the approach needed to maintain successful progression along the digitalisation path. Would the business achieve the desired objectives of the project and be an innovative, transformed business? How could the team make digitalisation an integral part of the business, as this would be the future way of working? What additional steps were necessary to equip the business and its employees for the forthcoming digitalisation roll-out?

Industry overview

DRA Global was a multi-disciplinary engineering project company that serviced the mining and minerals industry locally and globally. DRA Projects, the EMEA region projects company in the DRA Group, was where the digitalisation project started and the focal point of Heslinga and his team’s efforts. A large part of DRA Projects business came from the mining industry, a cornerstone of the South African economy. The Minerals Council of South Africa reported in 2021 that the mining industry contributed R480.9bn (R: rand) to the direct gross domestic profit and provided employment to 458,954 individuals earning R153.8bn (Minerals Council South Africa, 2022). The industry reported a significant milestone in 2021 when the production value surpassed R1tn. Regrettably, the industry grappled with transportation and logistics issues, which hampered export volumes, and the rise in costs outpaced the consumer price index in 2022, impacting the industry.

Industry trends leaned towards reinventing mining, including decarbonisation; environmental, social and governance (ESG) practices; remote monitoring; and digital transformation. A recent report from Deloitte inferred that numerous prominent blue-chip mining companies pledged to achieve zero carbon levels (Swart, 2022) from a decarbonisation perspective.

Investors were moving away from funding projects not considering decarbonisation; more specifically, thermal coal projects had struggled to attract major investor funding in recent years. ESG had increasingly become more critical to mining houses and service providers in the mining industry. Companies that previously focused on some aspects of ESG were now expected to adopt a more holistic approach. The COVID-19 pandemic in 2022 expedited the adoption of remote monitoring, control and commissioning, with clients actively seeking this service.

Digital transformation emerged as a vital strategic focus area for companies in 2022 (Madiba, 2021). The industry had identified the importance of innovation becoming central to mining, the adoption of agile principles, change management and accepting trade-offs when designing new systems. Heslinga was aware of the latest tracking trends reports (Swart, 2022), which suggested that mining project delivery could benefit from innovation. The industry data highlighted the need to increase digital investment to integrate next-generation technologies further, especially as projects occasionally experienced a 30% cost overrun on projects.

DRA Projects' traditional competitors were the larger engineering, construction and project management companies in the mining, infrastructure and petrochemical industries. Heslinga believed that DRA Projects had carved out a unique niche, and few competitors could rival the business's distinct total solutions offering. The company presented the market with a "one-stop shop" solution encompassing project development, delivery, operations and maintenance. Typically, competitors only offered one or two of these services. DRA Projects also offered a more integrated and holistic service within the ESG context. By leveraging Minopex, the operation and maintenance company within the DRA Group, DRA Projects was strategically positioned to incorporate operational best practices into its projects and engineering designs.

Company overview

Established in South Africa in 1984 by Brian Dowding and Tony Reynard, DRA started as an engineering business that grew organically in its early years. However, from 2010, the company embarked on a series of mergers and acquisitions aimed at expanding the business. The strategy behind these acquisitions was to build a global brand capable of competing with top-tier multinational corporations and achieve a global business listing. In May 2021, they accomplished this milestone by listing the company on both the Australian Stock Exchange and the Johannesburg Stock Exchange. This achievement resonated with the company's vision of becoming "the preferred global mining and minerals technical partner for diversified service offerings" (DRA Global, 2023).

In 2022, DRA Global employed over 4,300 people across 20 offices worldwide, establishing itself as a recognised partner in the mining, engineering and construction industry. With a demonstrated track record of delivering over 7,500 projects, studies and operation and maintenance projects globally, the business had developed significant expertise in the mining industry, specialising in minerals, mining, metals processing, water and energy solutions.

The business model of DRA Global centred around a holistic approach to the asset life cycle, constructed on three pillars: project development, project delivery and operations and maintenance. This comprehensive solution across the life cycle assured clients of a full-service offering from pit to port, implementable across commodities and scalable. In addition, a strong emphasis was placed on maintaining long-term client relationships and ensuring repeat business. In pursuit of this, the business sought to secure lengthy tenures with its clients.

The 2024 strategic plan of the company highlighted the implementation of a structured and progressive approach to technological best practices in engineering, project delivery and operations as key initiatives. The executive team was confident that the digitalisation of the project delivery system would allow the company to meet this goal. With his extensive background and experience, Heslinga was trusted by the business team to lead this project. Over the past 25 years, he managed and sponsored large-scale mining and mineral processing projects, including implementing brownfield and greenfield resource projects. In July 2020, Heslinga held a senior position within the business, serving as the senior vice president for projects, and in October 2021, he was promoted to managing director of DRA Projects for the EMEA region.

The inception of digitalisation

Fast-tracking the strategic business plans for 2024 related to driving innovation and the digitalisation of the project delivery system was top of mind for Heslinga while he travelled back from London to South Africa in November 2019. A meeting with a key client revealed that the business had been unsuccessful in securing a large project, which the team had worked tirelessly on. Despite the company's proven track record with the client and previous experience delivering successful projects, the business failed to demonstrate a common data environment and a fully integrated project delivery system.

Once back in the office, Heslinga engaged with the executive leadership team, emphasising the urgent need to prioritise digitalisation. The team concluded that the EMEA region would spearhead the digitalisation of project delivery and roll out the system to the global offices in future phases. At that moment, Heslinga realised that the project ahead could potentially be the most significant endeavour the business would undertake under his leadership.

The current project delivery system was limited; it lacked real-time visibility into project performance, process standardisation and automated workflows. Furthermore, inherent risks stem from potential human errors brought about by manual processes, inefficiencies from labour-intensive procedures and duplications of work. Heslinga hoped digitalisation would address these current system challenges, leading to improved decision-making and standardisation across all projects while minimising risk through enhanced transparency and collaboration. The transition to digitalisation would establish a single platform consisting of integrated project delivery modules [4], flexible enough for deployment as needed to accommodate each project and its various phases. Ultimately, the digitalisation of project delivery would foster a common data environment by integrating data from all modules.

Planning

The team initially drafted a two-year plan and later expanded it into a detailed project timeline and implementation schedule (see Exhibit 1). The first year, beginning in July 2020, was marked by the selection of the steering committee and the project team.

It ended in May 2021, after the completion of the business and market assessment of the project delivery platform system providers. The following milestones, business case approval, the selection of a project delivery platform system provider, mobilisation, project kick-off, project initiation, process assessment, design and build and user acceptance testing (UAT), were achieved from June 2021 until July 2022.

DRA Projects had a proven recipe for planning and executing projects. The typical engineering project involved scoping, costing, scheduling and assigning resources to carry out the work. During 2022, the EMEA business had between 30 and 40 multi-disciplinary engineering projects underway at any point in time, which were easy to manage and support because they were part of the day-to-day business. However, when it came to the digitalisation project, information technology specialists expressed concerns about using an engineering team to lead the project. They believed that rolling out systems and planning for the digitalisation project differed vastly from everyday engineering projects. They questioned whether a team generally assigned to engineering projects would be the right fit for running the digitalisation project and highlighted the risks, raising awareness of the potential issues that needed monitoring throughout the project.

Heslinga was conscious of the complexities and success factors underscored by research, acknowledging that many companies were unsuccessful when implementing digitalisation projects. During the planning phase, Heslinga recognised the unique nature of the new project, chiefly its focus on transforming how people work. The full impact of digitalisation and the ensuing changes it would bring to people's work would only emerge as the process unfolded. Consequently, agile and adaptive mindsets would be crucial to navigate the change effectively.

Year 1: in pursuit of resources and a system provider

Under Heslinga's guidance, the steering committee finalised process area stakeholders and internal solution experts, as depicted in the organisational chart (see Exhibit 2), in July 2020 and clarified their roles in the project. The steering committee aimed to create a solid foundation for the project by choosing 19 internal solution experts based on their profound understanding of the business processes and their enthusiasm for change. The committee recognised the risk of external consultants potentially selling DRA Projects a system that would not meet the current and future requirements of the business. Willem Postma, the project sponsor [5], knew that the business needed assistance from an expert in the digitalisation field. However, he found it difficult to recruit an expert due to the talent shortage in South Africa. After an intensive search, Postma received a recommendation that led to the introduction of Lee Conway. Conway had the requisite in-depth experience to assist with vendor selection. After conducting a series of interviews to align expectations, the project team appointed Conway as the project digitalisation lead.

Conway [6] had headed many digital transformation projects and was at the point in her career where she wanted to choose her next challenge; she valued joining a business that wanted more than to deliver a software system. During the engagement process, it became evident that the steering committee shared similar aspirations and demonstrated a strong commitment and willingness to support the project throughout all phases. From her experience, a lack of leadership support and an absence of internal expert involvement was an area where most companies failed, ultimately affecting their digital transformation journey.

Conway fully immersed herself in the business, which enabled her to understand the project's requirements. She found that each department within the business had, over the past decade, developed and created systems to cater to their specific needs. Discontinuing some of the existing systems would be necessary to make way for the integrated new system, which was when Conway began hearing concerns from some digitalisation team members. She faced the challenge of illustrating how the system would transcend departmental boundaries and highlighting the benefits of integrating and sharing data across all departments. In addition,

Conway needed departments to see how an integrated thread of data across different parts of the organisation could add value to the employees (internal) and clients (external).

To address the criticisms, Erich Meintjes [7], senior vice president of engineering, shared that from his experience in digitising the design office, the additional information captured in the design deliverable [8] was so valuable that it was almost criminal not to share it with other departments. He reiterated that sharing information and standardisation was necessary to keep the business competitive and relevant. This vision helped to ease the resistance, keeping the team open-minded and contributing positively to the process.

Conway led the extensive market assessment phase using her precise business understanding and digitalisation expertise. From July 2020 to February 2021, the team, represented by area stakeholders and internal solution experts, spent 1,800 h shortlisting the vendors, including 64 technical sessions with 20 software companies [9].

During this assessment phase, the vendors presented their solutions to the team, with extensive participation from all parties involved.

The different software platforms had unique ways of building their systems. Heslinga, with input from the team, decided that the solution that would bring the most value was the design system, as the business already had a robust digital platform in the design space. In addition, there was a leaning towards a system that integrated well into the design model space [10]. The other critical selection criterion for choosing the correct project delivery platform service provider was finding a company whose values and commitment aligned with the values of DRA Projects. Heslinga believed that alignment was critical, as this change was beyond just a software tool deployed to integrate data but would also impact the management of people and change how projects were delivered. The team gathered testimonials of systems from five companies that were clients of the shortlisted vendors. This end-user feedback was helpful, as suppliers tend to deliver impressive narratives on their products, but the delivery of this complex system might not work as promised. Finally, after all the deliberations, three vendors submitted commercial proposals, and the vendor chosen to partner with was the one whose platform spanned the entire project life cycle from concept through to handover.

Heslinga envisaged that the digitised system would be implemented across all regions to facilitate global standardisation. Accordingly, the approved business case highlighted six internal and external business drivers (see Exhibit 3). The executive team approved the business case on 10 June 2021, leading to the signing of a three-year contract with the project delivery platform service provider on 17 June 2021. Mobilisation of the project team began in July 2021, involving 30 DRA Projects and 13 project delivery platform service provider members, each with unique roles (see Exhibit 2). The DRA Projects team included a dedicated project sponsor, project manager, digitalisation and field implementation leads and internal solutions experts for the 13 modules.

Year 2: move to action

Project kick-off

As the project began in August 2021, Heslinga emphasised the importance of communication about the “people element” within the broader business as a key determinant of the project’s success. He maintained that transparent communication would foster trust and commitment.

As a result, an announcement was made to the workforce in July 2021 about the appointment of the project delivery platform system provider, and an overview of the digitalisation project was shared. A pulse survey in August 2021 gathered employees' sentiments regarding the current project delivery processes and systems. The results, displayed in a word cloud (see Exhibit 4), confirmed that the primary frustrations employees experienced were difficulties in accessing information and inconsistency across projects. In mid-September, a webinar hosted by Heslinga, Meintjes and Postma elaborated on the transformation of project delivery and the reasons behind the digitalisation process. The webinar included a question-and-answer session, enabling employees to understand the project better.

Morne Kruger, the implementation project manager, was responsible for the project's communication plan, which involved a variety of communication channels, including senior management engagements, weekly email communications, podcasts, videos, social functions, brochures, posters and roadshows. These communication efforts kept employees and clients updated on the project's progress. The team recognised the crucial role of well-timed and effective communication in generating interest and fostering participation in the journey. To this end, the involvement of various departments, such as human resources and marketing, was invaluable in setting up training and planned communications.

The steering committee anticipated that the project challenges would revolve around people and business processes. The expansion and involvement of the management team at both horizontal and vertical levels was deemed necessary for navigating the project's next phase. Heslinga approved the training for all leaders and managers during the implementation phase to ensure alignment and support during the broader project team's roll-out. Developing their leadership skills to guide people through digitalisation and the future way of working was essential.

The human resources department assisted with organising and rolling out training to over 100 employees between October 2021 and July 2022. The training covered the psychology of connection, self-awareness and leadership style, professional boundaries and adult conversations, leading the transition and leading resilience. There was a commitment to continue developing these leaders, who would be instrumental in taking the business forward. Reflecting on this, Heslinga received positive feedback from the digitalisation team, reaffirming the importance of the training during this process.

Project methodology

The project methodology included seven steps (see Exhibit 1) adopted for each module. These steps served as a roadmap for both the DRA Projects and the project delivery platform service provider teams to work towards shared goals and schedules. The initiation step provided detailed planning and project schedules for each module.

As part of the preparation, the project delivery platform service provider team provided training on the functional aspects of their offering to equip the DRA Projects team for the process assessment workshops. The process assessment comprised a series of workshops to establish process flows and identify pain points and best practices. The training offered was facilitated through the project delivery platform service provider's university; it provided certified courses, including 10 modules and 74 distinct courses. Conway reported that this training was essential for the team, as it offered a crucial understanding of the project delivery platform service provider's methodology and practices. In addition to the certified courses, the DRA

Project team had access to an e-learning platform that hosted knowledge articles, videos, release notes and user guides. This platform served as a valuable resource hub for the DRA Projects team as they navigated their digitalisation journey.

Design and build phase

The digitalisation project aimed to establish a common data environment, digital project delivery and integrated systems. The design and build phase intended to define the design specifications for the business processes without customising the system. A vital part of the design process was building the metadata [11] and parameters and ensuring that they flowed through the modules. The team understood that setting these correctly from the start would provide a strong foundation for future phases of artificial intelligence, potentially offering substantial benefits to the business. To achieve this meant there were times when the project encountered delays, and it became challenging for the team to keep the implementation according to the schedule.

Through the delays, the leadership team, including Heslinga, remained steadfast in their commitment to a quality-based approach over a time-based one, as they believed that the pace of the project should accommodate the rate at which people could manage change, thus ensuring each phase's success. The steering committee was also on board with this view and reiterated to the team that "we are not chasing schedule; we are chasing quality outcomes". This emphasis on quality over schedule reassured the team and helped manage their stress levels, notably when delays reached up to six months in some modules. At other times, the team was also committed to other engineering projects, so in some instances, that work took priority over the digitalisation project deliverables. Even though this caused stress for the team, the backing of the steering committee helped them navigate both roles.

Engaging with the business's internal processes from all the departments was enlightening for the team. It allowed each department to share its expertise, leading to a deeper understanding of various roles and their impact on the business. These discussions offered insights into how data flowed within the organisation, its inefficiencies, potential improvements and how the new system would integrate information. The design phase saw the team strive to align current business processes with the functionalities of the project delivery platform service provider's modules. Maintaining the business's innovative spirit and the flexibility to provide solutions to clients while transitioning to the new system was imperative. Meintjes stressed the importance of avoiding turning their employees into "post-box engineers" [12], reflecting the cultural emphasis on flexibility and ownership. Although the desire to maintain the existing workflows and flexibility was high, Heslinga and Meintjes understood that trade-offs were necessary. They were cautious not to require a customised system from the project delivery platform service provider, as they knew that such a system would continually incur costs for special updates and limit their ability to benefit from future software developments from the provider. Balancing these considerations while moving towards digitalisation proved to be a complex challenge.

Trade-off considerations

Heslinga disclosed that the business prided itself on building solid client relationships; thus, many unique business processes had been adopted over time in favour of a particular project. Bringing the team along was one thing, but bringing long-standing clients on board was tricky. The team communicated with clients, explaining that although some processes might change

as part of a shift towards best practices, these changes would ultimately benefit the clients. However, this task was complicated because the team could not yet demonstrate to clients a complete system. The team managed this by engaging in meaningful conversations with clients and assessing each case's merits to facilitate informed decision-making. Anticipating clients' move towards digital twins for their projects [13], the team knew they had to design their project delivery system to cater for this eventuality. Balancing the desire for customisation with the need to streamline processes for future adaptability proved difficult but necessary.

Another significant challenge came from external factors – specifically, the software supplier's capacity constraints. The digitalisation project entailed significant development work, placing pressure on the service provider to deliver within reasonable timelines. When the team was frustrated, Heslinga urged patience and adhered to his quality-first approach, reminding them that they were partnering with experts in their field. He also emphasised that as long as the initial setup was correct, DRA Projects could benefit from the project delivery platform service provider's ongoing development in the digital field.

The principle of partnerships and trust was integral to the DRA Projects approach, so from the outset, Heslinga explained to the project delivery platform system provider that their relationship would need to be built and sustained on a foundation of trust. During the discussion with the executive steering committee, it became apparent that the provider was committed to the present project and shared a commitment towards continuous innovation. The scope of their partnership went beyond just the day-to-day management of the project. It focused on long-term objectives such as progress tracking, vision alignment and future planning. This alignment further solidified the partnership, ensuring it was mutually beneficial for both parties; it was also hoped that a partnership strategy would offer a robust support system during the project's challenges and uncertainties.

Pause and reflect

The reality was that the dream envisioned might change along the journey, so Heslinga decided that the team would stop after each milestone to take stock. "Pause and reflect" became a central theme of the journey, with the mission to check on the decisions made regarding digitalisation. Heslinga wanted the solution experts and the area stakeholders to always be able to answer the following questions: Were we doing the right thing? Was the project delivery platform service provider solution the correct one? Were we following the proper process? Do we need to change the process? Heslinga tasked the team to check if they were okay with the business process mapping and to make sure they all made sense, as sometimes, what made sense, in theory, was not effective in reality. The ability to continuously assess decisions gave the team the freedom and confidence to voice concerns, allowing them to change things where necessary.

Conway confirmed that one such occasion of reflection led to a significant change in strategy for the logistics and fabrication tracking management module. The project delivery platform service provider's module did not fully meet the business needs, leading the team to realise that a comprehensive solution would likely not come from a single supplier. This pivotal insight allowed the team to refine their approach, reinforcing the value of the pause and reflect sessions. These sessions were more than just a checkpoint; they allowed the team to celebrate their accomplishments, learn from their experiences and determine the project's future course. Heslinga reassured the team that there would be no regret in changing the course of the project or even abandoning it if there was a unanimous decision that the project would not be

successful. The pause-and-reflect sessions enabled the team to clearly understand their position within the project and fostered trust and alignment among all stakeholders.

During the meticulous testing of each module, some tough conversations emerged regarding the promised capabilities of the project delivery platform service provider system. The system's features varied across modules, with some offering state-of-the-art solutions while others needing improvements. In response to these disparities, requests were initiated to improve specific areas, ensuring better alignment with business requirements. This proved a successful approach, resolving most of the identified issues. Through this rigorous and thoughtful process, the team at DRA Projects demonstrated a commitment to quality, transparency and adaptive problem-solving. Despite the inherent uncertainties and challenges, they remained focused on ensuring the success and efficacy of their digitalisation project.

Testing phase

UAT was done on a modular basis from December 2021 through June 2022. The team identified and documented various test scenarios, and the internal solution experts executed several rounds of testing. These test scenarios would later be repurposed for the integration tests. There was a sense of camaraderie and competition among the internal solution experts, who eagerly awaited the actualisation of their work in each module.

By June 2022, the team had completed the UAT for all the modules.

At that stage, the only outstanding test was the total integration of all the modules. Earlier delays had impacted the data integration timeline, a vital aspect of the digitalisation journey. The team resolved to extend the project timeline by six months, committing to work with software solution experts for complete data integration. With this decision was the commitment to periodically pause and reflect on progress throughout this additional six-month period.

After completing UAT, the company aimed to familiarise all employees with the new modules. The team conducted a roadshow to present the modules, demonstrating the capabilities of each module. The communications team added an engaging touch by creating a "passport" system, which got stamped as employees attended presentations for different modules. Fully stamped passports enabled employees to enter a prize draw. The roadshow also allowed employees to connect with internal solution experts and learn from them. To increase awareness and communication, the solution experts produced videos shared on the global platform for those unable to attend the roadshow in person. Exposure to these various forums nurtured leadership qualities in the solution experts – a fact that Mahomed Kajee, the field implementation lead, validated. He noted that this process sometimes pushed the team out of their comfort zones, offering them new professional development and growth opportunities.

Pilot testing considerations

The digitalisation project team anticipated the pilot testing phase to be the most challenging [14]. Similar to commissioning an engineering plant, this phase is often when unforeseen issues arise, mainly when dealing with total module integration. The pilot project teams would play an active role in this testing phase, necessitating increased communication and more frequent "pause-and-reflect" sessions.

These sessions would provide an opportunity to address technical issues and discuss areas of improvement related to personnel and soft skills. During the design phase, the team faced several challenges balancing their commitments to the digitalisation project and their regular engineering projects. This led to delays and frustrations, as it impacted deliverables. Thus, a central aspect of the pilot testing phase would be careful resource planning, particularly regarding employees' time and project demands. Potential difficulties could also affect clients, emphasising the importance of managing their expectations during pilot testing, especially because it would take place on their live projects. Identifying a client and a project team that were enthusiastic about participating in the digital sphere would be valuable, and choosing employees who were passionate about digitalisation could significantly facilitate the piloting process.

Success aspirations

Heslinga and his team understood the importance of keeping employees engaged and minimising any anxiety related to the changes brought about by digitalisation. According to Heslinga, maintaining employee enthusiasm and focus on the opportunities and developments that would benefit all was a vital success factor for the project. During the company-wide webinar, Heslinga shared his vision of what success would look like:

Employees talking about how they enjoy working at DRA because they can work efficiently and deliver quality and accurate work due to a digitised project delivery system. There would be happy and motivated employees because they would be proud of being part of new technology and innovation in project delivery. New job opportunities, skills development and empowerment in DRA's project engineering and delivery teams resulting from the new digitised project delivery system. Seeing that the project delivery digitalisation will provide a better-quality work environment for our people to work within.

From a business perspective, Heslinga highlighted that achieving the company's strategic goals would be a significant measure of success. The ambition to drive innovation would come to fruition when the data collected from the project delivery system contributed towards the realms of artificial intelligence, digital twin technology and predictive environments. The project delivery system would be capable of structuring the necessary data, which would be the starting point of what he referred to as "where the magic starts". With vast amounts of data available from various projects and operations, this blend of information would prime the business for working in a predictive environment. In this scenario, real-time data could help anticipate potential issues, adding a significant layer of efficiency and foresight to operations.

The look ahead

Heslinga reminisced on the journey from a view of accomplishments and valuable lessons for future endeavours. The team highly valued the support from leadership and management, the prioritisation of quality over schedule, the commitment to simplicity and the patience that allowed for the solution's evolution. The teams appreciated the opportunities the project created for in-depth cross-department collaboration and for individuals to develop, not just for the benefit of DRA Projects but also for their personal growth.

Although the project had delays in some areas, Heslinga believed that the additional time helped embed a culture of improvement, leading to focused innovation. The digitalisation team experienced highs and lows throughout the project. The demands of the project and

digitalisation deliverables had been stressful for the team. Heslinga was mindful of the hard work the team had put in and wondered how they felt at this juncture.

Looking ahead, the next phase of the project would bring an opportunity to reinforce the team with additional resources, providing much-needed support. Areas of improvement include allocating more time for system integration and promoting open-mindedness towards process changes. Heslinga believed the transparency regarding pain points, practical strategies, updates to support documentation and addressing resource constraints would all be instrumental in shaping the project's future success. The DRA Project teams were on the cusp of bringing about the most significant transformation in the company's history. The project's roll-out phase was critical; if successful, it could secure a competitive advantage and ensure the company's long-term sustainability on a global scale.

Next steps for the journey

As Heslinga sat at his desk in preparation for his meeting with the team the next day, he started to deliberate on the areas he should focus on to continue the successful journey. What approach should he follow to achieve the intended digitalisation objectives in the next phase? What more steps were needed to prepare the employees to transition and adopt the new system? How could the teams make digitalisation an integral part of the business, as this would be the future way of working?

Notes

1. Personal Interview J.C. Heslinga, managing director of DRA Projects, EMEA region, on 2 August 2022. Heslinga had over 25 years of engineering experience in the mining industry. He held a master's degree in engineering from the University of Pretoria and was a registered project management professional.
2. EMEA region: Europe, Middle East and Africa.
3. Meetings were held with the digitalisation team to pause and reflect on progress, celebrate wins and check if the project was still on course.
4. The modules covered all the different areas within the project delivery realm, including estimates, models, control, changes, schedules, contracts, documents, field, completion, compliance and analytics.
5. Personal interview with Willem Postma, project sponsor, on 1 August 2022.
6. Personal interview with Lee Conway, digitalisation lead of DRA Projects, on 25 July 2022.
7. Personal interview with Erich Meintjes, senior vice president engineering, on 27 July 2022.
8. Design deliverables produced huge amounts of data around design that could be beneficial only if shared early on in the process. From Nardelli, N. (2022, August 12). *Design Beyond Deliverables*. Medium. Retrieved from <https://uxdesign.cc/design-beyond-deliverables-993700a4a7c7>
9. Internal company report and presentation provided by Lee Conway.
10. Design system/model space everything that was designed could be drawn, which then got an identity, and with an identity, it was unique, and there was an opportunity to plan, schedule, cost, buy, sign off and hand over.
11. Metadata is information about other data; it describes the other data and helps to sort them.

12. Someone becomes a “post box engineer” when a system is so rigid that it allows for no flexibility and does not encourage people to think for themselves.
13. A digital twin is a visual replica with live, editable design and construction data, including 3D models and building information modeling.
14. Personal interviews with J.C. Heslinga, Erich Meintjes, Lee Conway, Majomed Kajee, Willem Postma and Conor de Beer.

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Disclaimer. This case is written solely for educational purposes and is not intended to represent successful or unsuccessful managerial decision-making. The authors may have disguised names; financial and other recognizable information to protect confidentiality.

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Table 1.

Technology advantages based on Kraus <i>et al.</i>'s eight technology drivers	DRA Projects digitalisation implementation
Increases the ability to exploit external knowledge	The appointment of the digitalisation implementation lead was evident in how important external knowledge plays in setting up a project of this scale. Through the market assessment phase, the digitalisation team received exposure to many local and international companies. This external exposure helped to build their awareness and knowledge of how technology can advance digitalisation. The protagonist mentioned that he was pleased that the digitalisation team received external exposure and indirectly developed skills in innovation and technology
Enables innovation through internal knowledge	While working on the business processes and workflows, the departments were vocal about how much knowledge they gained from this process. An advantage of spending the required time for this process was that it broke down the silos that existed between the departments. This specific area brought so much value that the protagonist and the steering committee members indicated that this contribution was priceless and very beneficial
Adds value by providing location-independent access	The common data environment is central to the digitalisation of the project delivery, and as stated in the case study, this will address many of the current system shortcomings. Live data will be accessible to the entire project team
Allows the rational valuation of external information	The business will need to address how to skill employees to analyse the data from the system once full integration happens. The project's subsequent phases, identified as possibly the predictive environment, will need employees to have special skills when working with large amounts of data
Encourages business agility	A well-constructed enterprise architecture feeds digital transformation (Kraus <i>et al.</i> , 2021). In the case study, enterprise architecture was in the format of redesigning business processes and workflows. There were instances where processes and workflows had to be discussed in-depth with all stakeholders before being incorporated into the enterprise architecture. Here, teams had to be agile in agreeing on the new workflow and processes. Ensuring that the digital capability building looked at best practices also encouraged business agility to allow for changes where necessary
The opportunity for network effects and standardisation benefits	Global standardisation was the business driver emanating from the business strategy for digitising the project delivery system. The case study also mentions the business drive to use best practices that fed into standardising processes that would benefit all stakeholders
Channel for information or interactions with stakeholders	The case study alluded to the importance of client relationships. Digitalisation would amplify the value creation this would bring to stakeholders. The success of this advantage will come to fruition once employees experience the digitised system
Facilitates novel business innovation models	There is no evidence in the case study of any changes to the business model. However, the external business drivers do indicate the client's demands. The need for a digital twin and digitised project delivery may mean the business model needs reconfiguration (Kraus <i>et al.</i> , 2021)

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Table 2

Stouten <i>et al.</i>'s ten-step framework	Case study analysis	Implications based on other change models in Exhibit 8
Assess the opportunity or problem; motivating the change	<p>Under the technology and innovation pillar in the company's 2024 strategy, there were plans to address the project delivery system. However, clients started to demand an integrated system</p> <p>There was enough motivation because the business had failed to secure a key project. The business then had to prioritise digitalisation to remain competitive</p>	<p>There is no consensus from change models on how to tackle this step. The scientific evidence states that the following needs to be considered:</p> <ul style="list-style-type: none"> • Understanding the need and reason for the change • Planned and rational change receives better attention from all stakeholders • Change participants need meaningful reasons to adopt change • The level of urgency can negatively impact the change with impossible goals, the fear created and employee stress
Select and support a guiding change coalition	<p>The steering committee and the overall digitalisation team formed the change coalition (see Exhibit 2). Executive leaders were part of the steering committee and supported the project throughout the phases. The system provider also had an executive layer so that all angles provided support. Area process stakeholders were senior managers, department heads and solution experts who were knowledgeable in their disciplines</p>	<p>The prescriptive models share the importance of this step but have differing opinions on the coalition's composition. There was not much research supporting the impact of the coalition on successful change. The research focused on trustworthiness and credibility from a management perspective</p> <p>The other area with limited literary backing is the type of tasks the coalition performs</p>
Formulate a clear, compelling vision of the change	<p>The case study alludes to the "Wh" of the digitalisation project; it needed to remain competitive and relevant to ensure the company's sustainability</p> <p>The protagonist articulates a compelling vision of what the change would look like when he shares his views of success for the business and the employees at the company-held webinar</p>	<p>Change models agree that vision plays a role in change management success, but research shows challenges in creating visions that can bring positive regard to change participants. Approving a vision depends on individual viewpoints on whether the change is acceptable. The communication of a vision can affect the buy-in from stakeholders</p>
Communicate the vision	<p>The business received communication on the project's vision through town hall talks, emails and webinars</p> <p>Heslinga, Meintjes and Conway reminded the digitalisation</p>	<p>Broadcasting a vision with a communication strategy was not what research suggests was the most important; instead, a meaningful reason leads to successful change</p>

	<p>team of the vision, as they worked through the phases, especially when there was doubt about the outcomes and changes needed for the project to attain its objectives</p> <p>The area process stakeholders embedded the vision, as they communicated to their departments</p>	<p>Another factor is trusting leaders for the reason to change, which can affect the recipient's attitudes</p> <p>An essential factor that helps change to be accepted is if there is a shared meaning and other team members are in support</p> <p>Clarity on the harm that a change can bring must be articulated in the vision, as this can have a negative impact</p>
Mobilise energy for change	<p>The market assessment phase in the case study could link to this step. The business was keen to gather all the relevant information to ensure the business case was sound</p> <p>Lee Conway, the digitalisation expert, led this phase. Her expertise and knowledge brought the energy that was needed</p> <p>The business supported this phase during the nine months it took to complete</p> <p>DRA Projects trained over 100 managers to handle the change process and the participants</p>	<p>Research attention is on the activities that can effectively help with the change. The effective management of change by managers helps bring success. Hence, training and skilling managers to have the tools to implement change are very valuable. Change fatigue can impact how participants react to change initiatives, so even though change is continuous, planning for how participants feel must be considered at all stages</p>
Empower others to act	<p>The digitalisation team was empowered to act as they worked through the phases. They were allowed to improve and change processes and workflows in the intense design and build phase. They were fully accountable for these, which they became owners of, and ultimately would run the change initiatives during the system's deployment.</p> <p>Departments used participants to help with testing</p>	<p>Research supports that active engagement by change participants is needed, which helps with self-efficacy</p> <p>Empowering the participants to act promotes them to participate in change-related tasks, thereby giving them exposure. The research mentions that manager support is encouraged and adds value when participants can assist with the change roll-out</p>
Develop and promote change-related ability	<p>The digitalisation team was exposed to training from the system provider-certified courses through their university. This training, combined with their expertise, helped them develop videos and training documents to be used in the roll-out of the project</p> <p>DRA Projects provided psychology connection training to prepare the team to deal with the implementation process</p> <p>All managers received similar training and were ready to help with the change process once the system was ready</p> <p>The protagonist mentioned that he was happy that the teams were skilled and developed through implementation</p>	<p>Only two models mentioned skills and learning as part of the change process</p> <p>Managers need to support participants by training them with the correct skills and knowledge to help them navigate the new way of working</p> <p>Stouten <i>et al.</i> (2018, p. 766) suggested that "Support includes gaining member commitment by enrolling them in training, leader modeling of new behavior, practice sessions, and early trials to build psychological safety regarding new behaviors"</p>

Identify short-term wins and use as reinforcement of change progress	The implementation of the digitalisation project spanned over two years, so the team needed reinforcement and encouragement as they progressed. The reinforcement and short wins came in their “pause-and-reflect” sessions, where the leaders decided to celebrate each milestone The quality versus time perspective also motivated the team; they felt supported through the journey	Only one change model gave this step complete focus. Research shows that insufficient metrics can be identified that link to show progress The research shows that participants find progress and information that is important to them adds value during the change process
Monitor and strengthen the change process over time	The next phase entails the roll-out of pilot projects, which will bring in new resources and the next layer of employees to learn the system, thereby strengthening the change The case study mentioned resource restraints, a challenge prevalent throughout the project The communication plan helped with timely updates to the business by using different channels, such as surveys, webinars, roadshows, emails, social functions, podcasts and videos. These helped to embed the changes The demo done in the roadshow gave visibility to the system and options for questions and queries to be answered As the next phase kicks off, new monitoring will be needed to check the project’s progress	Most models believe that this is an essential step in the change process Research confirmed that not having the correct amount of resources can jeopardise the implementation of change. It is vital that during the roll-out of the change, leaders are aware of other challenges so that they can mitigate these, thus removing additional stress for participants Managers must be open to feedback and address concerns raised with possible solutions
Institutionalise change in company culture, practices and management succession	The protagonist made it clear to external partners how important the company values are and that they were central to the project Also, his aspirations of what success would look like for both the business and employees were verbalised. He also mentioned how important the people element was for the project The above points all showcase the importance of the digitalisation project, so the subsequent phases will make sure this step gets attention	There was consensus from the change models on institutionalising change, especially that the change becomes practice and needs to be built into all processes Research does not provide much information from a change perspective on institutionalisation

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Exhibit 1. Timeline a project methodology

Table E1

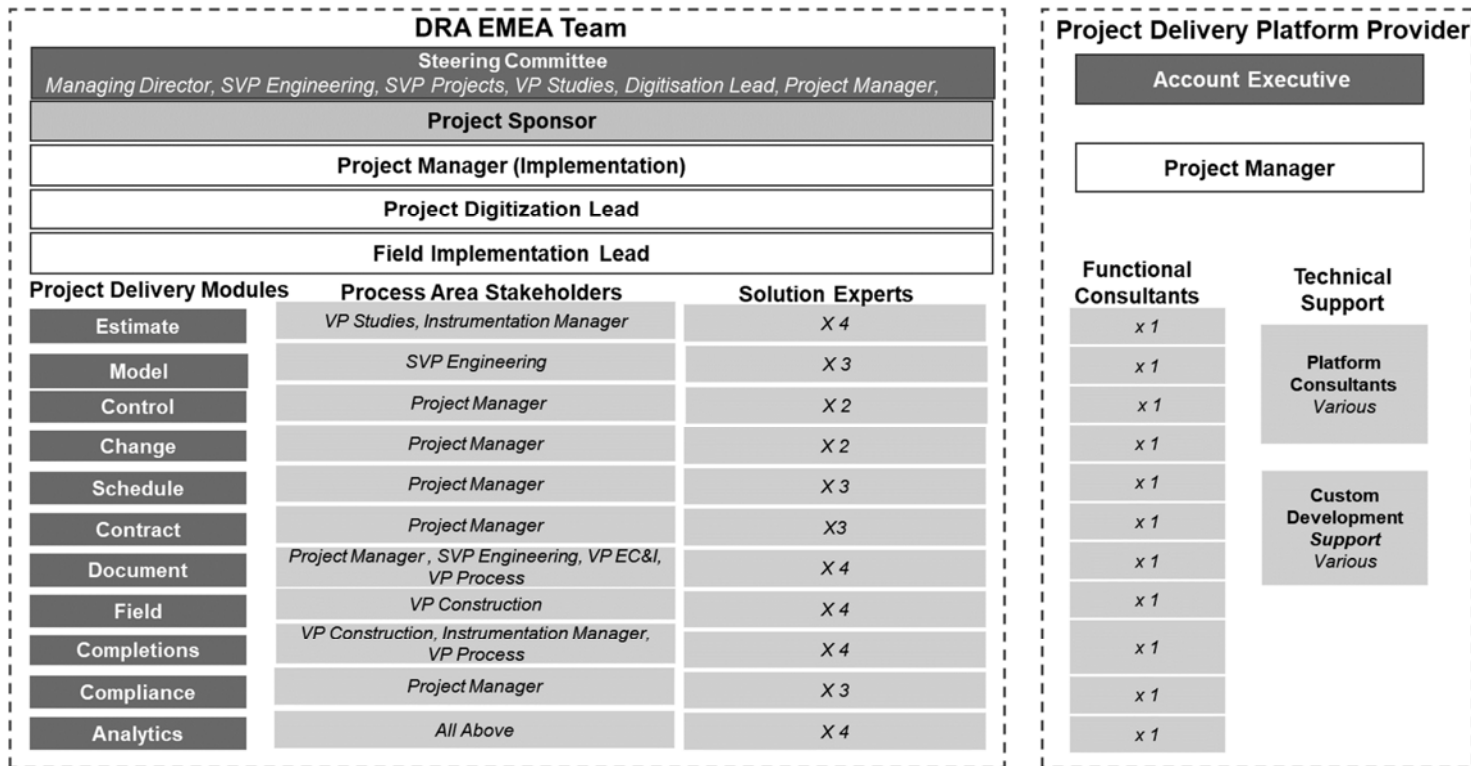
Year	Timeline	Events	Project methodology		
2020	July	Steering committee and internal experts selected			
		July		Appointment of Miss Lee Conway, digitalisation lead	
		July to February 2021		Market assessment phase	
2021	February	RFQ to shortlisted to vendors			
		June		Regret letters to unsuccessful vendors	
		March to April		Sessions with five companies using the preferred	
				Project delivery platform provider	
		June		Business case approval	
		June		Contracts executed	
		June to July		Mobilisation	
		July to October		Setup and configuration	
		August		Project kick-off meeting	
		August	Project initiation	Initiation	Planning and kick-off Establish and configure environments Gather 'As Is' artefacts
		August to September	Process assessment	Process assessment	Workshop setup Process assessment workshops
		September to October	Core team training	Core team training	Preparation Training Post-training follow-up

		August to October	Design and build	Design and build	Design decision log Integrations Configure and test	
		October	Heslinga promoted to managing director of DRA EMEA			
		October 2021 to July 2022	Leadership training – leading effectively through change and transition			
2022	December 2021 to June	User acceptance testing (UAT) on modular basis	Test	UAT Defect resolution Go-live readiness assessment End-user training		
		February to continuous	Platform integration design			
		May	Project delivery platform provider roadshow			
		January to June	First feasibility study – estimating module go-live			
		July	Pause and reflect			
		August	Roll-out system to pilot projects	Go-live	Deploy to pilot project Post-implementation support	

Source: Authors' own creation

Exhibit 2. High-level organisation chart – project delivery digitalisation

Figure E1



Source: Created by authors with authorised information

Exhibit 3. Business drivers – project delivery digitalisation

Figure E2

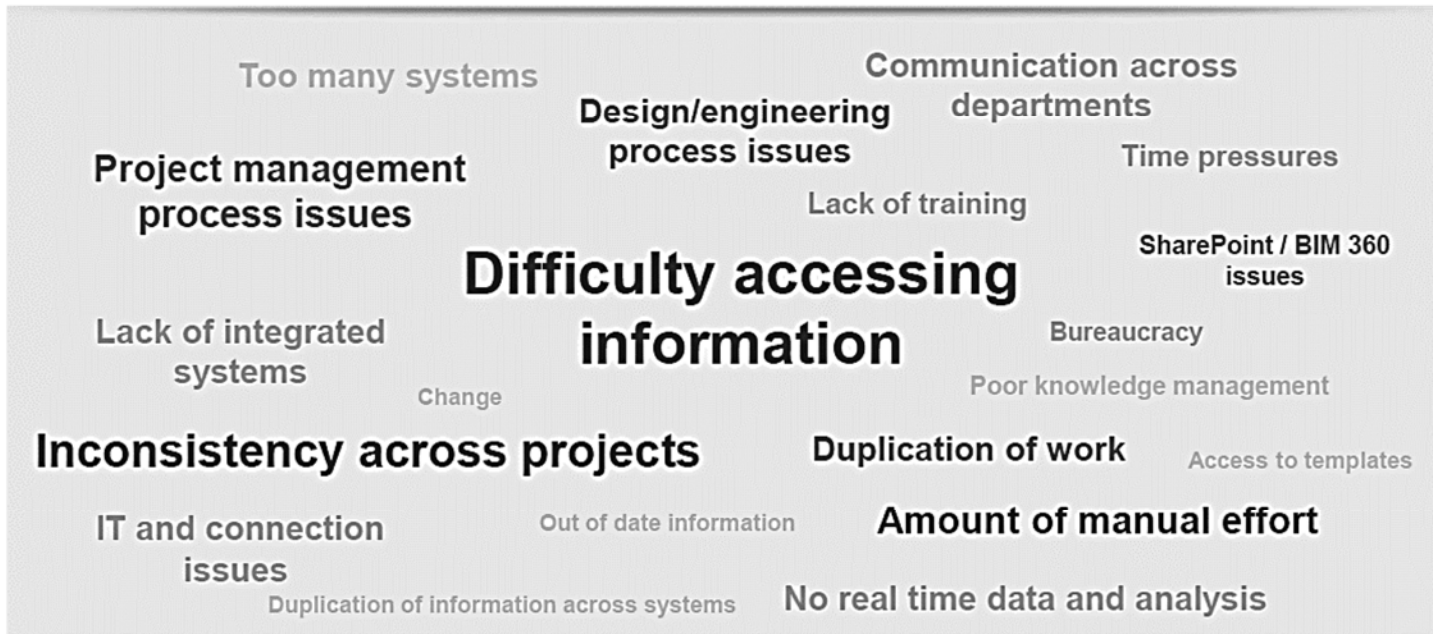


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Exhibit 4. Survey result

Figure E#

What frustrates you most about DRA's project delivery processes and systems?



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