

KN10 - Digital Transformation: the EGA Way

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Abstract

Digital Transformation has been in every industry leader's mind for several years. Together with Industry 4.0, it is revolutionising most industries in the world and aluminium is likely to be no different. This is about leveraging the exponential development of Information Technology (IT) capabilities to transform the way industries operate. Nobody can ignore the power of Artificial Intelligence, Internet of Things or Augmented Reality just to name a few of those technologies. All companies adopting digital, and Industry 4.0 are focusing on speed, agility, and technology mastering and as a result are enjoying a significantly improved performance. EGA is leveraging 10 digital capabilities to digitise, digitalise and digitally transform its operations. At EGA, the journey started a few years ago when we discovered and adopted some of those capabilities. We are now moving into the third phase out of four of our transformation programme. This phase is all about industrialising the way we define, develop, deploy use cases through our digital factory to provide value to EGA. It also means strong foundations such as strategically aligned roadmaps, teams upskilling, deploying cutting edge technical platforms, and transforming the way of working with Agile frameworks as they help speed up and scale up our impact to the company operations. Value can be realised in different stages of the aluminium value chain as can be illustrated by some of the use cases EGA deploys in Carbon, in Reduction, in Supply Chain or in Marketing & Sales.

Keywords: Industry 4.0, Digital Transformation, Artificial intelligence, Data.

1. Why is EGA Digitally Transforming?

The development of technology and the deployment of innovation have reached a pace never seen before. It is not following a linear evolution anymore but what looks like an exponential one. This is very prominent in the Information Technology field where massive investments across the globe have fuelled what is now called the 4th industrial revolution also known as Industry 4.0. Bringing the new digital technologies to revolutionise the way all industries operate is a massive transformation.

Before getting into how we make this happen at EGA, we investigated what happened to those companies in other industries that are already on the way. This is now even clearer that the benefits of such transformation are very significant financially (e.g., typically 10 % increase on EBITDA) but also in terms of employee engagement, resilience, and adaptability. And this is what really matters nowadays: being able to adopt faster than others the impactful technologies is critical to sail through a disruptive world.

We all know companies in the consumer industries that have come from zero and became a clear market leader, a trendsetter and the often most profitable. They all share this appetite for speed, agility, efficiency, and technology mastery.

2. What is our Digital Ambition and Focus Areas?

At EGA we are looking at three levels of transformation, from “digitisation” which is about turning the analogue into digital, then onto “digitalisation” which is about improving the game by embedding the digital into a transformed process and then towards “digital transformation” which means changing the game, changing the business into a more complete digitally inspired change. All of this requires strong digital platforms and foundations to be enabled.

Many technologies have seen incredible development in the last decade. For EGA we have selected 10 digital capabilities that we want to leverage (Figure 1). They represent a wide range of capabilities, and we will progressively use them all.



Figure 1. Ten digital capabilities that we want to leverage.

EGA has adopted a statement to materialise its digital ambition: “As a digital lighthouse for our region, we democratise digital capabilities to ‘change the game’ and create inspiring experiences for ourselves, our customers and our partners.” This is incredibly ambitious and inspiring for all team members involved and is guiding us on some very specific way we take at EGA on this matter.

3. Where Are We in the Overall Journey?

We have adopted an approach in four steps to make EGA transformed digitally:

- Discovery & Adoption
- Structuration
- Industrialisation
- Digital is the new norm.

These steps of evolution are to be assessed along four foundational capabilities. Those are absolutely critical to make the transformation sustained and impactful on the long run:

- Digital Ambition & Value Roadmap
- People & Capabilities
- Technology & Infrastructure
- Governance & Way of Working.

In the initial Discovery & Adoption phase, the main objective is to learn, to experiment, to work in small areas and eventually to fail here and there. This phase is not the most satisfactory but is

essential to the future successes as it creates the appetite and the knowledge necessary to move further. Having this built from within the organisation is key.

For the second phase called Structuration, we have been connecting the Industry 4.0 focus to some key business areas' strategic objectives. Making sure we do projects because we expect a great value rather than to learn and discover. This is also the phase where you want to centralise the execution of use cases and start to design the technical enablers that will be necessary. This means assembling a team to support use case execution and platform design. Also, this is the moment where you make the key choices in terms of way of working. We chose Scrum agile framework for this activity and started to deploy the governance that can support such innovative way of working.

We are now at EGA entering the third phase called Industrialisation. This is the phase where most companies fail! Probably because this is the moment you accelerate and start leveraging the foundations fully. It means all business areas (operational and corporate) have a clear digital transformation roadmap, reviewed, and updated regularly. It means we start to decentralise the use case execution to the business team thanks to maturing technical platforms and a significant upskilling of team members. It also means the agile practice can be implemented at scale.

The last level is still ahead of us at EGA but it is making digital the norm. While it is difficult to define a norm on something that is by essence evolving constantly, we will be at this stage considering digital as part of everything we do, we will be evaluating our priorities based on the value, including the digital business potential of it, we will be selecting our partners also based on their alignment to our digital strategy. This is where the company becomes different then it was initially.

To illustrate EGA's progress along these four phases we can mention the more than 40 use cases that we have been delivering and putting in production, the team of more than 20 people assembled so far as well as the 700 people upskilled through our digital academy to date.

4. How Are We Approaching this with our Dual-Track Approach?

Adopting a dual-track approach and making it work in a balanced and effective way is one of the key success factors for any Digital Transformation programme.

On the one hand, delivering value early in the programme is necessary for the sustained investment stream as well as to give a chance to the teams to experiment by themselves the new technology and the new way of working. On the other hand, this activity cannot be continued for long if not supported by foundations to enable this activity. This would be delivering long term solutions using scaffoldings!

We call Digital Factory the delivery of use cases and Digital Foundations the four pillars that enables us to anchor the programme on the long run (Figure 2).

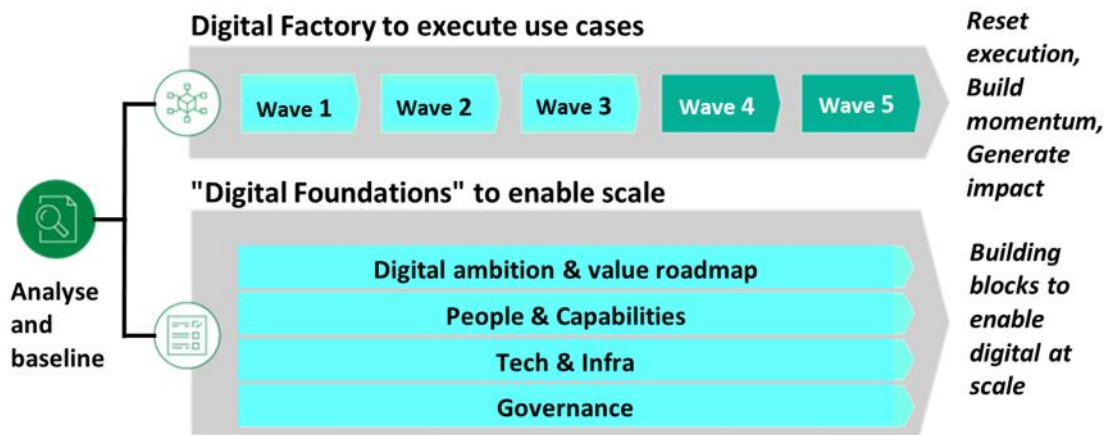


Figure 2. Digital factory and “Digital Foundations”.

4.1 Digital Factory – Execution of Use Cases

For the Digital Factory we have adopted an approach inspired by the agile at scale frameworks (Figure 3). Every 4 months we are launching a “Wave” made of use cases working for 12 weeks in sprints of 2 weeks. The use cases are selected using the business area roadmaps to ensure the value of the use case and a checklist of maturity to ensure that all technical enablers as well as team members are available for these intensive twelve weeks. The decision of which use case to include in the Wave is taken a few weeks before the Wave is actually launched.

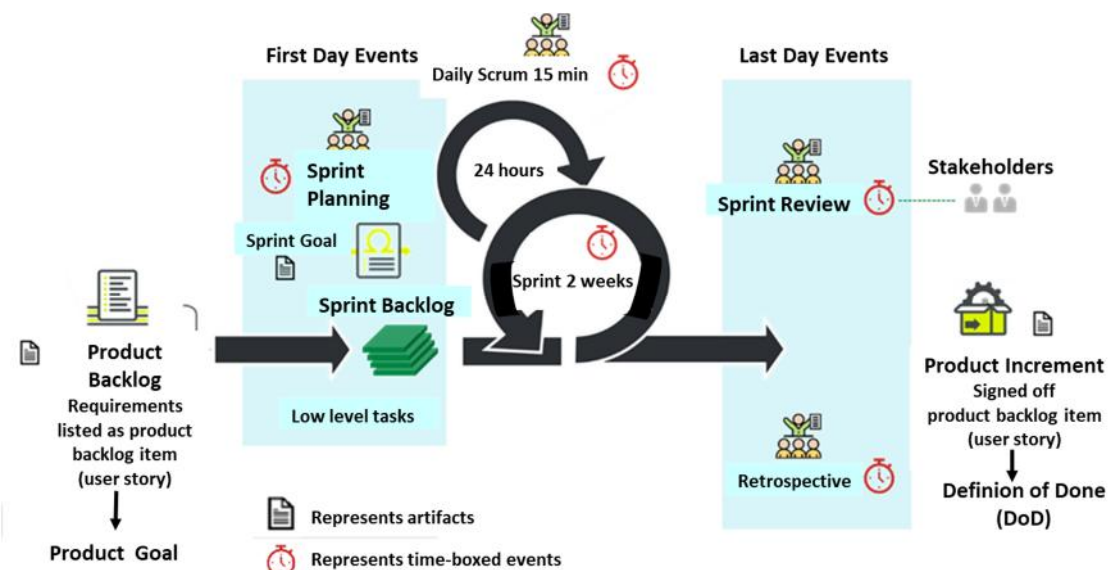


Figure 3. Digital factory inspired by the agile at scale frameworks.

We are now in Wave 5 and will be in Wave 6 by the time of ICSOBA 2023 conference. We have been gradually ramping up the number of business areas participating in the Waves (from 3 to 5) as well as the number of use cases (from 6 to 12). The areas we are working with now include Midstream (Carbon, Reduction & Maintenance), Supply Chain, Marketing & Sales, Human Capital and Finance.

Regarding the use cases, we are running a wide variety of them in terms of technology used, in terms of impact on the direct business, in terms of maturity as well, but the goal is always to bring value to EGA using one or more of the 10 digital capabilities.

Some examples of use cases will be presented during the Keynote speech.

4.2 Digital Foundations – Enabling Scale

As mentioned before, without foundations an Industry 4.0 transformation programme is not sustainable. This is one of the reasons companies have failed their digital transformation as they focused too much on delivery projects or proof of concept rather than sustainable industrial solution, supported by a mature ecosystem. To be complete, the other reason companies have failed such transformation is when they focused too much on the foundations and reached the end of the investment bucket before delivering enough value. The truth in that matter for EGA is in the careful balancing of these two tracks.

We have at EGA defined four elements to act as foundations for our transformation on the long run.

4.3 Digital Ambition & Value Roadmap

As we aim to produce value for the company, we need to be clearly aligned with Business Areas priorities all the time. At first, we initiated a roadmap with the management team of each area getting inspired by benchmarking exercise and industry experts. Then every four months, in between each Wave we take another look at the roadmap. We are regularly revising it significantly when there is a good reason for it and of course prioritising the next Wave use cases.

4.4 People & Capabilities

In such a transformation, it is very key to involve the experienced EGA team members so that more and more contributors can join the central dedicated team in executing the Industry 4.0 use cases and progressively become autonomous in doing so. We have at EGA the objective to centralise the enablers and decentralise the execution. This second part can start with industrialisation and is key to scale up the programme.

In order to achieve this EGA has created a Digital Academy that is delivering in partnership with the EGA Academy a suite of trainings and development options. Almost 1000 EGA employees have already been through the awareness initial sessions (one on the technology side, one on the way of working / agility side) and some have engaged themselves into a role specific training and hands-on development (like for example: Product Owner, Data Analyst or Scrum Master).

4.5 Technology & Infrastructure

This is the natural part of the foundations that no one would forget. It is extremely important to define, build and maintain a great technical platform to support all 10 digital capabilities. EGA has decided to partner with world class leaders such as Microsoft, Databricks, Dataiku or ServiceNow to realise such a platform. It will enable both the IT professionals and the newly upskilled EGA team members to access the data, to engage with models and automations features and to deploy them in the plant and in the corporate area.

The target is to support first EGA teams as well as the partners involved in making it work at EGA but also to become an area of cooperation for the industry.

4.6 Governance & Way of Working

Last but not least, is the foundation related to Governance and Way of Working. Digital use cases are not the same than classic projects. Successfully developing and deploying them requires a

different way of working. It is intrinsic to the nature of those digital capabilities. We have chosen to operate on the basis of agile scrum framework as illustrated above but also to progressively adopt an agile at scale framework to support our ramp-up of use cases.

4.7 Real-World Example of Deployed Use Cases

We have run more than 40 use cases and will share a couple of those in the keynote session as the agenda allows.