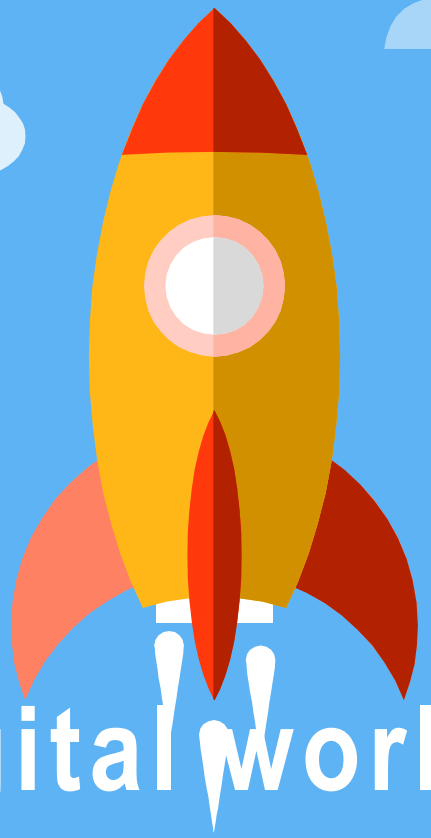
THE EIPM VALUE CREATION OBSERVATORY

2021

Re-imagining supply management in a digital world



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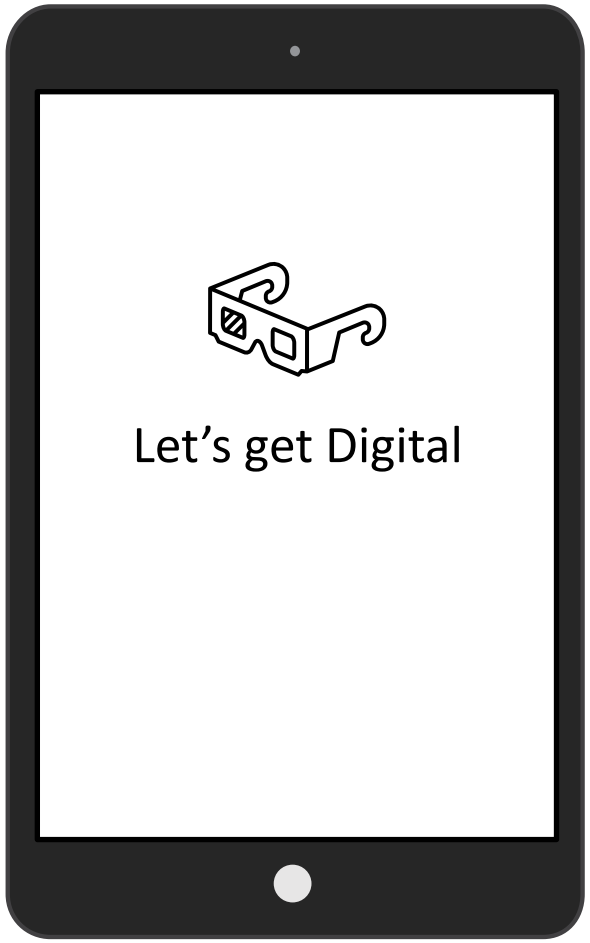
An EIPM Laboratory

The Value Creation Observatory is a research observatory to measure the progress of the Purchasing profession towards Value Creation.

It consists of a series of surveys, workshops, webinars, case studies and publications.

The results shed light on important questions in terms of achievements and practices and result in reports on the findings with recommendation for actions.

The rationale behind this document



Digital transformation is now a reality for many industries and business activities. More changes are expected in the future with the wide adoption of cloud solutions, artificial intelligence and the internet of things which together connect and embed equipment, products, value chains and other economic activities within digital infrastructures.

For the Purchasing function, the journey has started. But if a few companies have made significant progress, many others are still in the early stages of their journey. The lockdowns which forced many people to start working from home are reshuffling the priorities. Some digital projects are accelerated… others might take more time to become a reality.

The present document reflects on what can be achieved and how it can be done. It builds on a series of research, projects and events that have taken place over the past years and what will happen in the future.

Who contributed to this document

Hervé Legenvre

As the Director of the EIPM Value Creation Observatory, Hervé conducts research on innovation and purchasing, and on how new technologies are changing industries. He recently studied how open-source software and open hardware have powered the emergence of digital technologies.

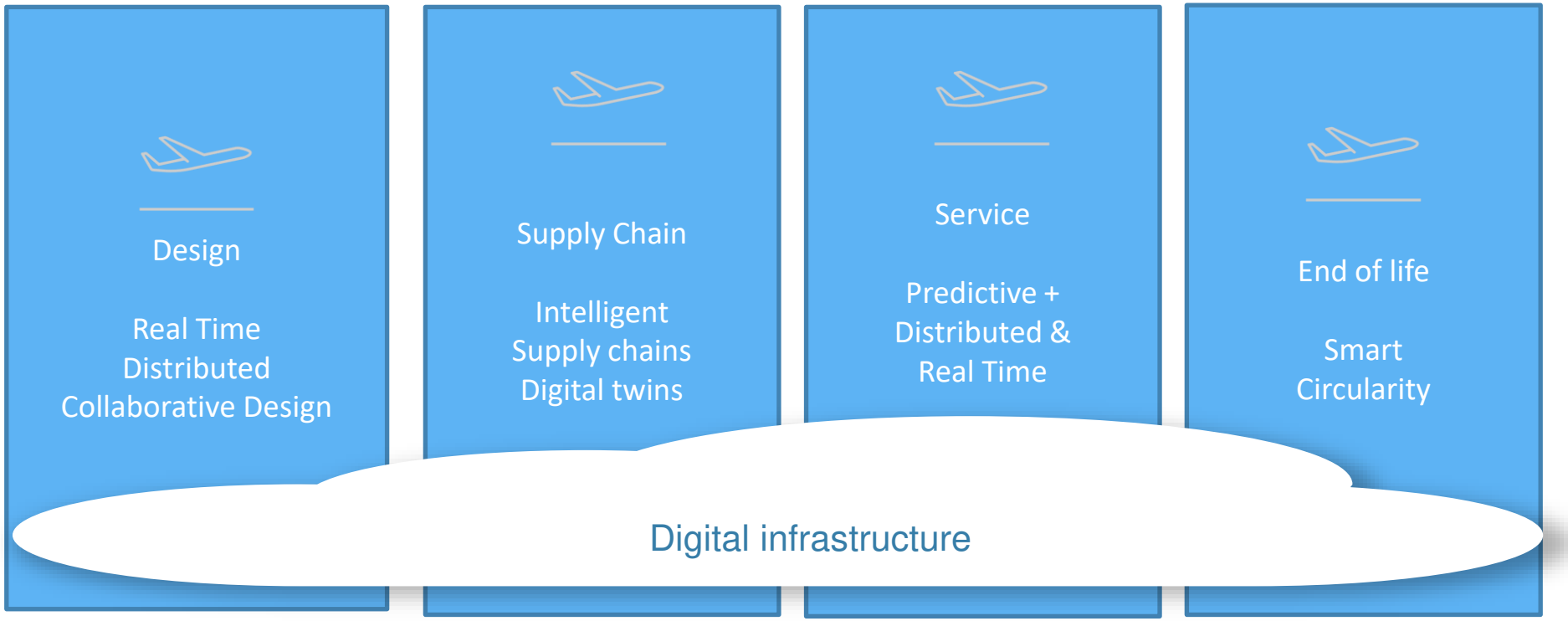
Hervé blends the best of academic and practitioner thinking to create a unique learning experience and engaging content. He acts as a Juror for the EIPM-Peter Kraljic Awards and regularly speaks at in-company and public events.
Hervé recently co-authored the book “Fifth Generation Purchasing: When pace meets power”.

Ednilson Bernardes

Ednilson Bernardes is a Professor of supply chain management and a program coordinator at West Virginia University (WVU). He founded the Global Supply Chain Management Program at WVU.

His research interest includes supply network innovation, competitive dynamics, and digital transformation. He has co-authored various books, including “Digital Supply Networks: Transform your Supply and Gain competitive advantage with Disruptive Technology and Reimagined Processes”. He has facilitated innovation and performance improvement initiatives in large organisations such as Toyota, West Virginia University Hospitals, and the Drug Enforcement Agency (DEA).

Welcome to a software-defined world



As digital technologies are everywhere, all products, value chains, and business activities are embedded within a digital infrastructure. In this context, software orchestrates all existing pieces of hardware, processes, transactions and collaboration. We are operating in a software-defined world.

The future of value chains

The integration of value chains within digital infrastructures will pave the way to changes

Design

Today design activities are conducted by teams who focus on specific components independently from each other before bringing a complete system together.

Tomorrow multiple teams will connect to a central, continuously-updated design repository. AI technologies will help optimise design parameters. Simulations and virtual tests will provide rapid feedback to the teams. Prototyping will be enabled by platforms and distributed production.

The Design of hardware and mechanical components will integrate more agile development practices.

Supply chain

Embedding supply chains within digital infrastructures allows to unify data coming from multiple sources. However, progress towards unification will take time due to legacy systems.

Software coupled with AI technologies can perform diagnostics (Why did this happen?), predictive analytics (What will happen?), and prescriptive analytics (What should we do?) This creates real-time visibility, reduces risks, optimises inventories and can predict demand by geographies.

Quality will be supported by smart cameras and AI to perform visual inspections of shop floors.

Service

Services and operations will increasingly be operated using data-led services. This helps establish contracts where companies pay for the performance or the outcomes.

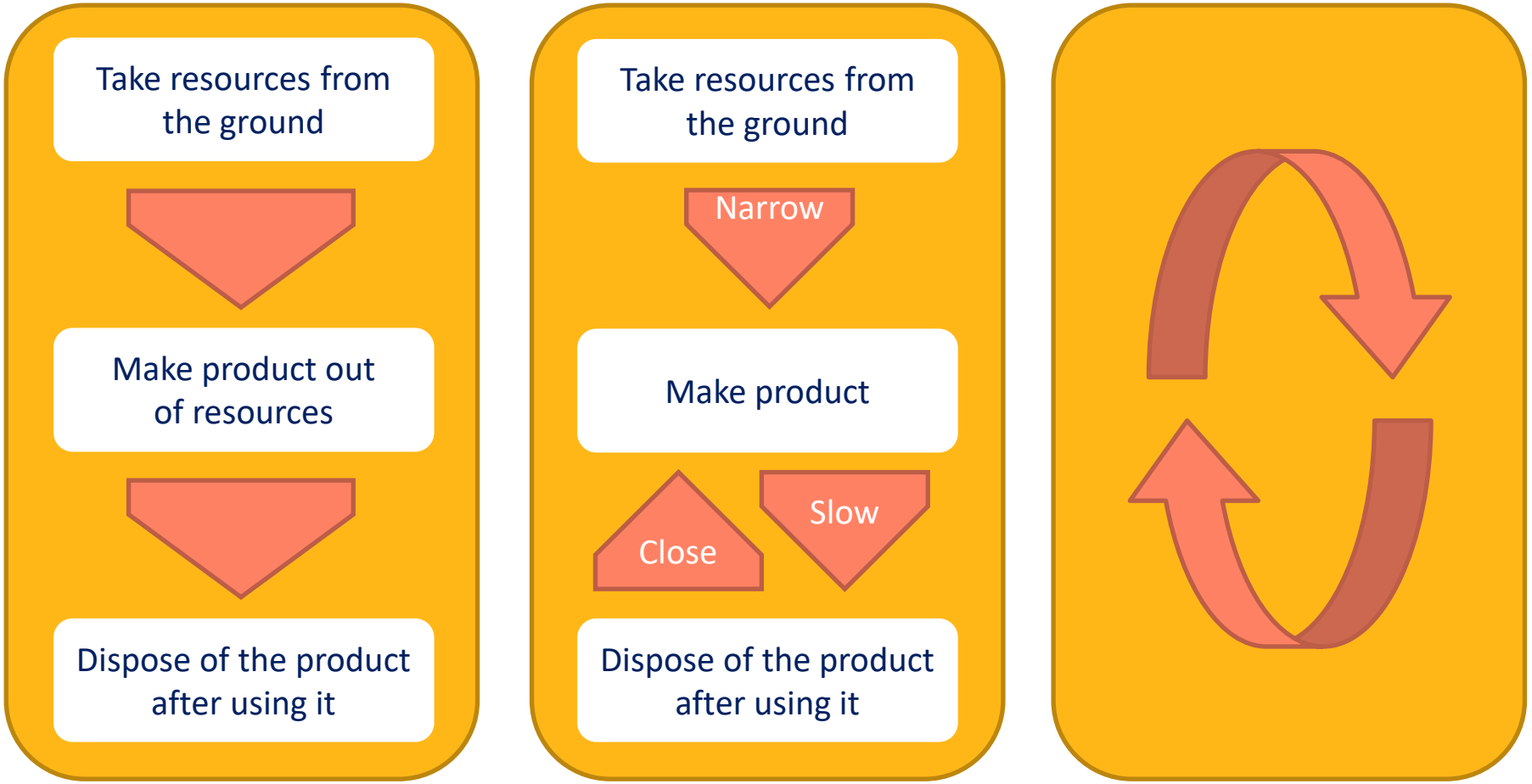
Remote monitoring, predictive analytics, virtual reality will also support service activities.

Manufacturing of spare parts and accessories will increasingly be distributed.

On-demand local production will be facilitated by open design. This will become common in industries able to push for standardisation and open architectures.

Towards the Circular Value Chain

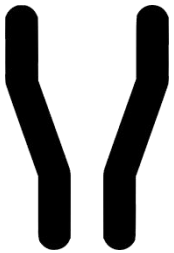
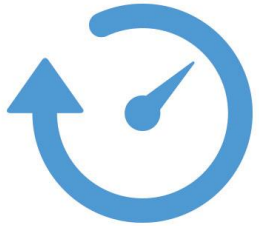
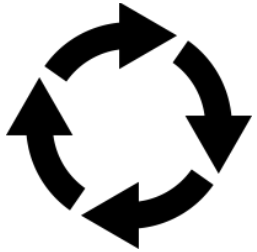
The other major trend which is changing how economic activities are performed, is the concern for environmental impact and performance. This is creating a shift from the left to the right of the image below.



And technology has a role to play…..

Smart Circular Value Chain

As value chains increasingly become circular, smart technologies enable and complement this change.

	Narrow	Slow	Close
			
What circular means	Reduce resources needed to manufacture and use a product. Use fewer resources per product.	Slow the resource loops, by extending the life of products and components.	Close the resource loops, by enabling re-use and recycling.
How smart technologies help	Digital resources help explore design alternatives in order to reduce the environmental impact. AI technologies can optimise design and manufacturing for sustainability by eliminating waste.	Remote monitoring, coupled with predictive and prescriptive analytics, can help extend the life of equipment, products and components. They facilitate maintenance and repair activities.	End of life will increasingly be supported by data-led diagnostics that enable effective re-use and recycling of products. Platforms allow to repurpose and trade products at the end-of-life stage.

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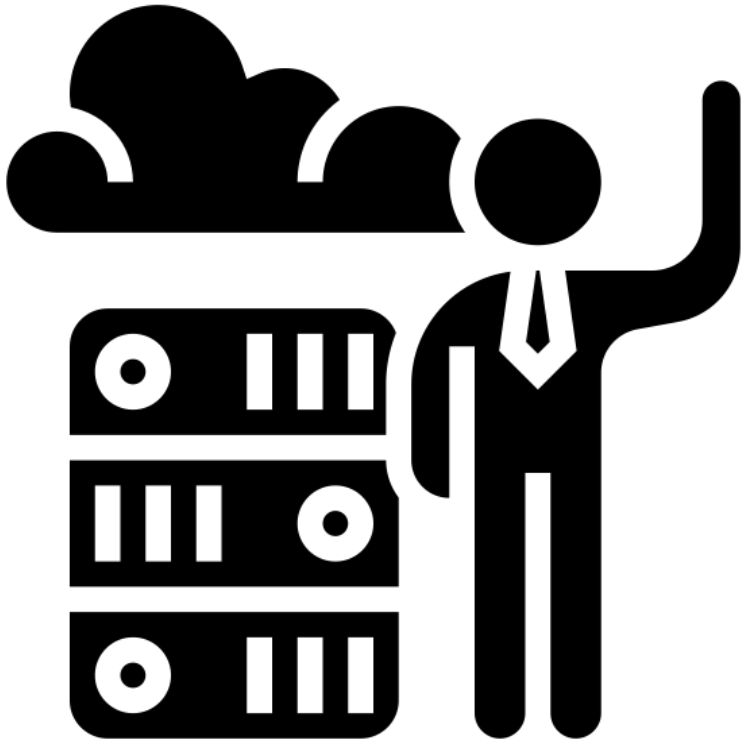
Digital innovation: a collaboration challenge

All digital innovations are not all equal – digitalising a process is more simple than building new digital foundations in established industries. Different types of innovation require different approaches.

	Digitalising processes	Digitalising Products & business models	Digitalising industry foundations
Focus on	• Smart production • Digital supply chain • Digital procurement • Digital marketing • Digital tools for finance or HR	• New digital functionalities for enhanced product • Transforming products into complete digital services • New business model (platforms, pay for outcomes)	• Complete industry changes • Currently happening in the digital sector with AI but also in the telecom and automotive sectors
Success factors	• Focus on the user experience and simplicity • Limit the number of technologies which need to be integrated together • Work with partners you trust, partners close to your company • Manage the change internally	• Focus on creating hard to imitate differentiation • Accept collaboration with unfamiliar partners (start-ups, spinoffs from universities, university labs or far-flung technology alliances) to control differentiation • Manage these collaborations closely • Help people across the company challenge their assumptions and see the world differently	• Establish industry-wide collaborations and build a shared vision for the future • Define collectively the infrastructure needed to operate across the industry • Co-create industry standards, define open interfaces that favour interoperability and flexibility • Favour open-source software and open hardware in layers that do not bring differentiation • Be patient and drive change over the long term

Digital innovation: the infrastructure side



Created by Eucalyp
from Noun Project

Digital innovation requires combining multiple technologies. Most of these technologies help build digital infrastructures and have no impact on market differentiation. On the software side, many of the technologies are available under open-source licenses. They can often be accessed on Cloud platforms as a service.

For hardware, the focus is on establishing open technical architecture, so you can mix and match components coming from different suppliers. In addition, focusing on standard components helps reduce prices while favouring technical interoperability.

Companies such as Facebook, Microsoft, and Google have taken this logic quite far. As part of the Open Compute Project, they have created an open design for all the key components of a data centre - anyone can download and manufacture them. This feature creates an economic advantage and offers great flexibility.

But some technologies play a key role in creating differentiation….

Digital innovation: the differentiation side

Created by Tatyana
from Noun Project

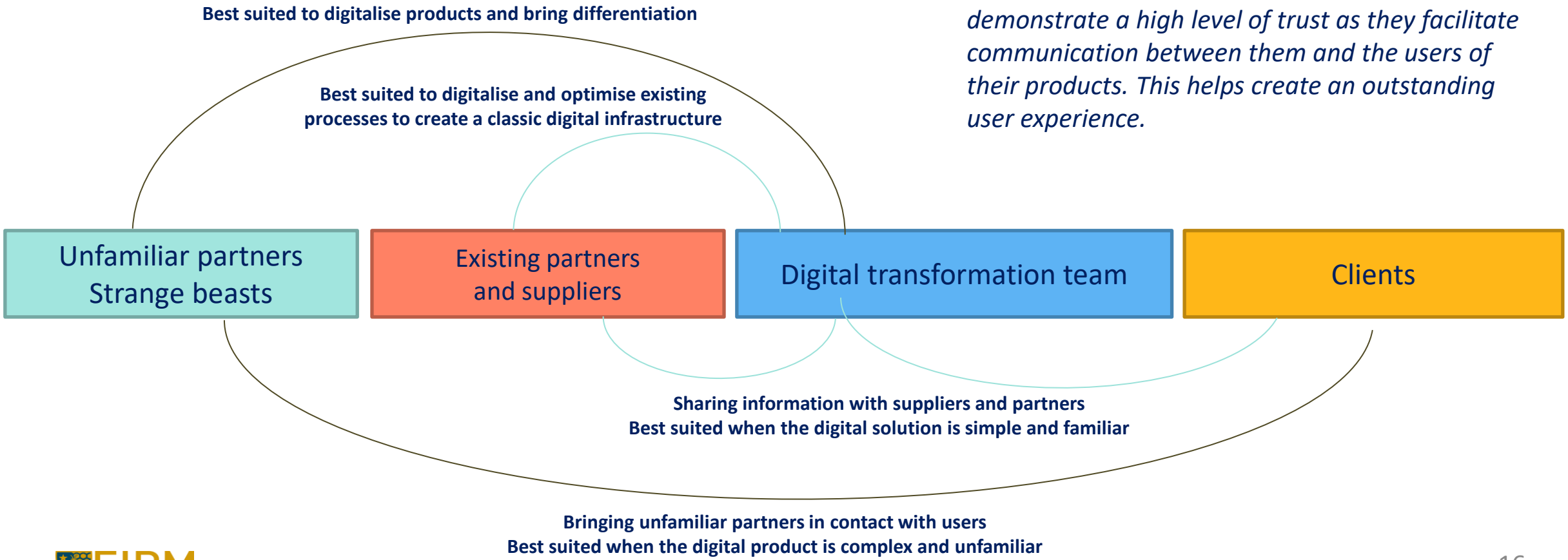
Many companies lack the in-house skills that help create unique technologies with differentiation power.

This can lead them to collaborate with "strange beasts" - unfamiliar partners who are ready to provide them with exclusive access to the technology.

This allows them to control differentiating solutions. The strange beasts include start-ups, spinoffs from universities, university labs, far-flung technology alliances.

Digital innovation: Working with strange beasts

Successful companies manage closely their relationships with strange beasts, but they also demonstrate a high level of trust as they facilitate communication between them and the users of their products. This helps create an outstanding user experience.



Procurement: the solution landscape

A digital transformation addresses how Humans and Machines need to work together to achieve some common goals. We have identified 3 types of complementarities.

Automation

With automation, some activities performed by humans are transferred to machines. It helps humans free the time they spend on low added value activities.

To do this it is essential to reach a stage where the machine is truly autonomous, trusted and accepted by humans.

Assistance

With assistance, some activities performed by humans are facilitated by machines. They allow us to visualise relevant data from different angles in order to take the right decisions.

To do this it is essential to bring multiple sources of reliable information together so that humans can build on them.

Augmentation

With augmentation, strategic activities performed by teams are accelerated.

This delivers value by achieving breakthrough impact in terms of cost, risk or innovation.

To do this, it is essential to rethink how teams of humans work together with the support of machines.

The next page describes when these 3 solutions can be implemented.

The solution landscape

When should we automate, assist or augment the work of humans?

Automation

Automation is best suited for simple tasks such as information collection or basic computation.

It impacts the efficiency of individuals. This often builds on existing systems used by buyers, additional applications available on the market, and technologies such as robotic process automations.

This helps move from Computerisation to connectivity.

Assistance

Assistance is best suited for more complex activities where different sources of information are continuously aggregated

It allows buyers and stakeholders to take the right decisions. Different sources of data need to be available, complete, accurate, reliable and accessible in appropriate tools.

It helps achieve transparency and real-time decision making.

Augmentation

Augmentation is best suited for complex and collaborative activities which could not be systematically performed before.

It allows teams to deliver more value. This might require changes to the ways of working, the governance processes and sometimes the organisation… so technology really empowers humans.

It allows the company to predict risks to catch opportunities and adapt rapidly.

The next page describes some of the solutions.

The solution landscape

Automation of work	Assistance of work	Augmentation of work
		Effectiveness and Strategic Value
	Performance for stakeholders	Performance for stakeholders
Purchasing Efficiency	Efficiency in Purchasing	Efficiency in Purchasing
Automatic updates of regulatory information	Smart contracts	Development of predictive models on demand
Digitally-supported audits and compliance	Predictive pricing	IoT-powered circular value chain
Automatic generation of contract clauses	Tracking solutions	Carbon footprint optimisation
Enhanced spend management	Cybersecurity solutions	Intelligent risk management
Purchase order automation	Platforms and configurators	Advanced costing tools
Automated RFQ analysis	Use of virtual reality for audits	Technology intelligence
Contract management tool	Demand forecasting powered by AI	Market intelligence
e-signatures	Real-time performance and risk monitoring	
e-catalogues	Use of 3D printing in operational processes	
	Real-time data sharing across the supply chain	
	Collaboration and idea management solutions	

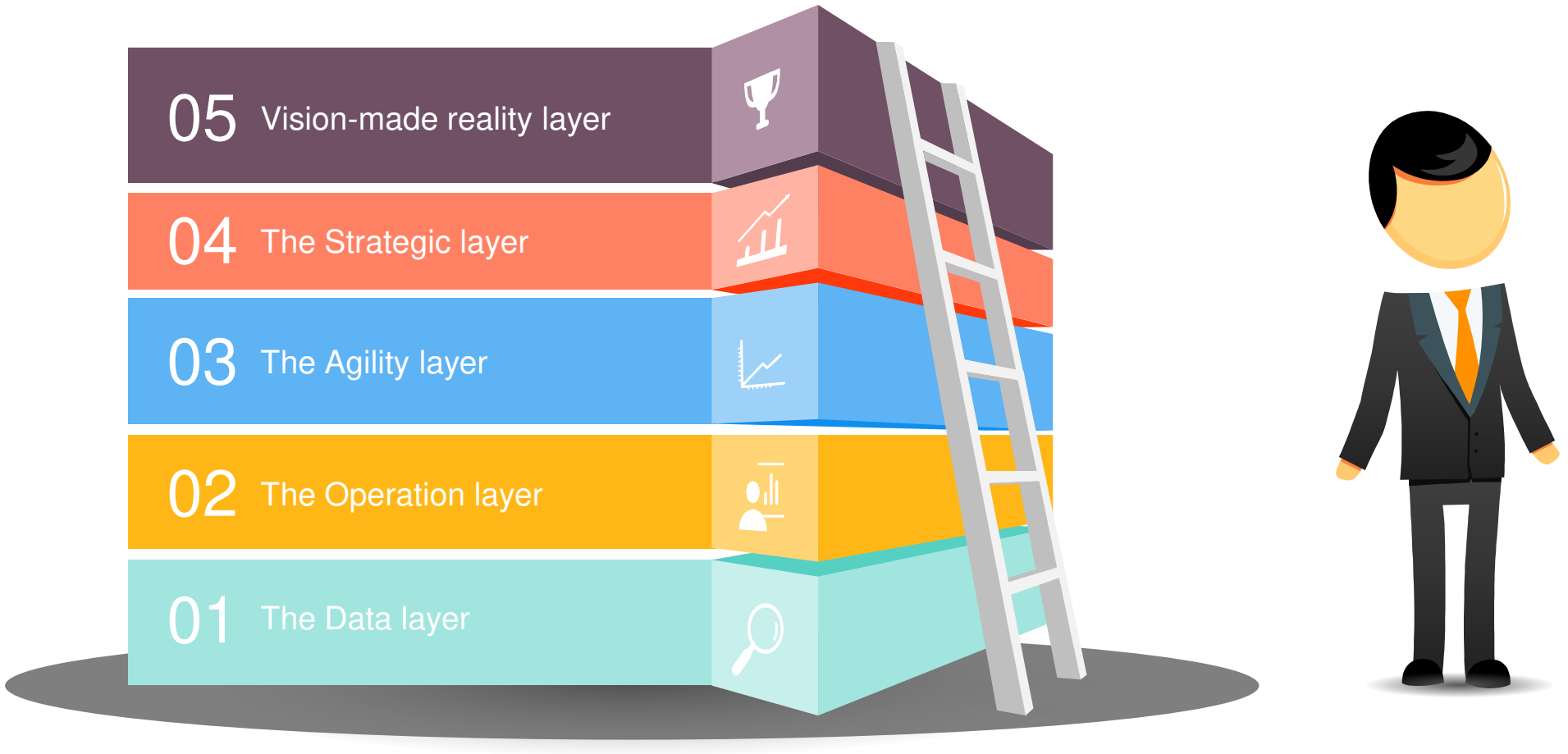
Digital as a strategic enabler

Digital enables real-time decision making

Data becomes complete, accurate, available and reliable

1/ a world of connectivity	2/ a world of transparency	3/ predictive and prescriptive tools

Visioning your Supplier / Procurement tech stack
The new road to Excellence



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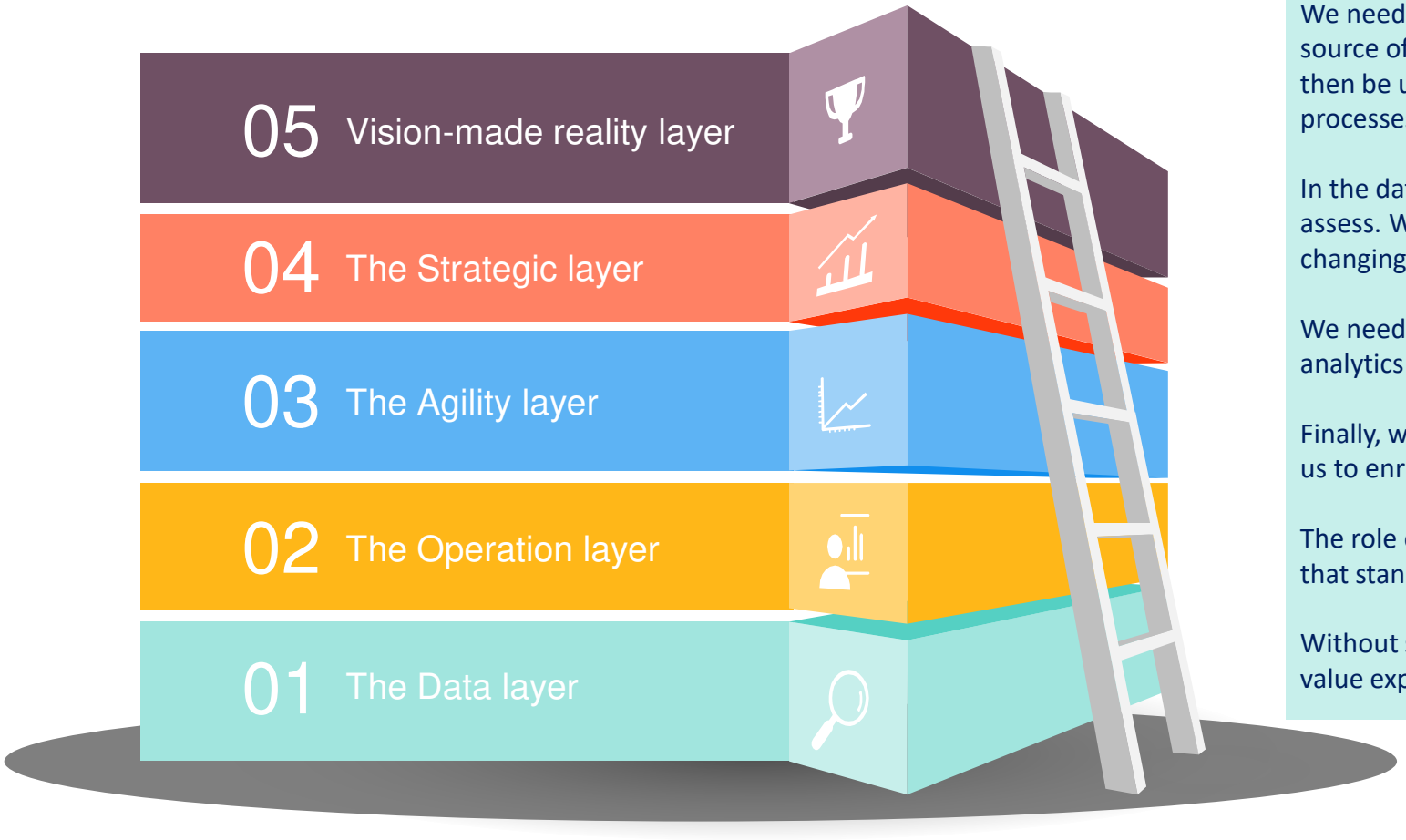

The Data layer

We need proper vendor data management systems that serve as a single source of truth for procurement and other functions. This foundation can then be used in conjunction with different systems, applications and processes.

In the data layer, we need data that is reliable, secure, easy to trace and assess. We need information that is updated at the right pace, in a rapidly changing environment.

We need enough information to leverage business intelligence and business analytics opportunities.

Finally, we need both company data and external sources of data which allow us to enrich the intelligence and services we get out of our digital assets.

The role of buyers here is to support access to quality data and to ensure that standards are adopted.

Without such foundations and the associated it is hard to deliver the final value expected.

Visioning your Supplier / Procurement tech stack
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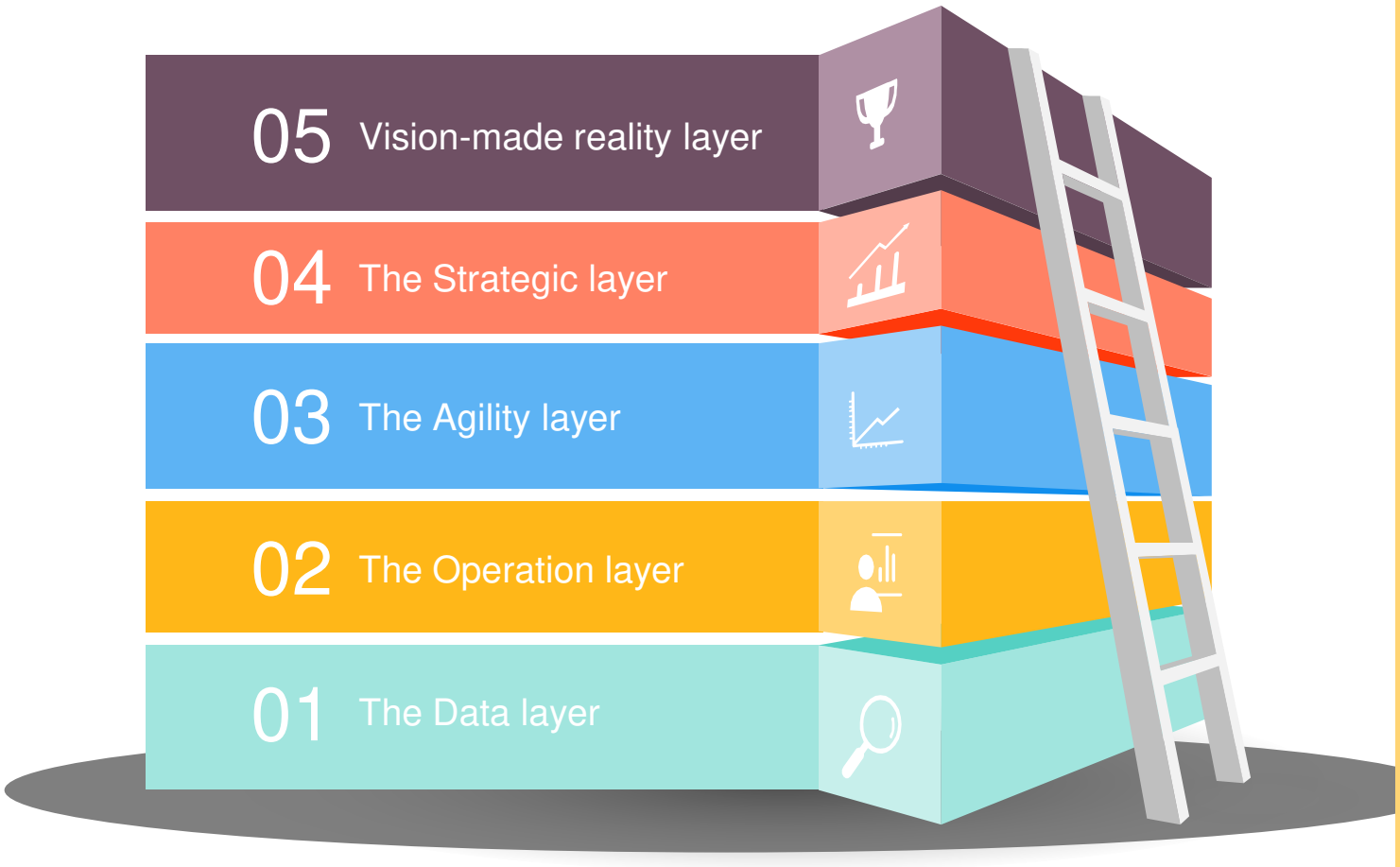

The Operation layer

To create effective operations, processes need to be streamlined, cloudified and supported by relevant offshore capabilities before considering further automation opportunities. Using bots is an easy patch but which needs to be kept as a last resort solution. If we end up with legacy systems bridged together with a myriad of bots… these legacy systems will be even harder to modernise.

A challenge here is that procurement solutions need to be better than your favourite e-commerce platform. For many years, we have heard we need an e-commerce-like experience. On a marketplace, people often enjoy searching for the right solution but in a work context they want immediate access to the solution. Users need a single point of entry that can take them either to a catalogue, to a marketplace or which initiates a request. Simplicity for users is a condition for success today.

Finally, we can offer some stakeholders access to a tool so they can autonomously run a supplier selection. This requires a simple workflow that ensures compliance. While this can be a great solution, simplicity is key and continuous training for new users is required. If this is well implemented, it helps procurement focus on the strategic problems and opportunities of the business instead of loosing time on second rate imperatives.

The role of buyers here is to act as architects and create solutions that deliver a seamless user experience to their stakeholders.

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The Agility layer

In a stormy environment, some digital solutions are first very easy to implement and second, very powerful to navigate through these turbulences.

During the epidemy, we have seen procurement organisations use algorithms to quickly spot the supplier they needed to work with, to anticipate capacity issues. A simple algorithm developed and refined over a couple of weeks allowed these companies to be three weeks ahead of others for the implementation of contingency plans with suppliers.

We have also seen other procurement organisations who developed in one month a financial stress test tool to help some of their suppliers better understand their situation.

This is quite an important lesson for the future. While some digital initiatives take time, others can be rapidly developed and implemented. By rapidly repurposing data and digital assets, companies can create immediate advantages that play an essential role in their success.

The role of buyers here is to spot opportunities to develop simple digital tools that can deliver outstanding value. To do this it is great if they can work with data scientists who can turn their ideas into solutions.

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The Strategic layer

We sometime have a bias. We believe that digital solutions help to automate low value adding tasks. But they can also power strategic activities and create procurement performance breakthroughs.

If design-to-cost activities can be performed within one week instead of six; if risk management can be supported by real-time multi-source information, if carbon emission can be rapidly calculated… we're doing much more than just eliminating annoying little stones, we're boosting the strategic capability of procurement.

Carbon emission is also a theme where breakthrough can happen thanks to digital solutions. Companies are centralising and transforming how they calculate and address carbon emissions to reach the zero-emission commitment they have announced.

We see a lot of opportunities to share and learn as this is a challenge faced by every company. The faster we move forward on this, the better!

The role of buyers here is to create ambitious projects that make a clear difference for the business, projects where digital is an enabler of great internal collaboration and future success.

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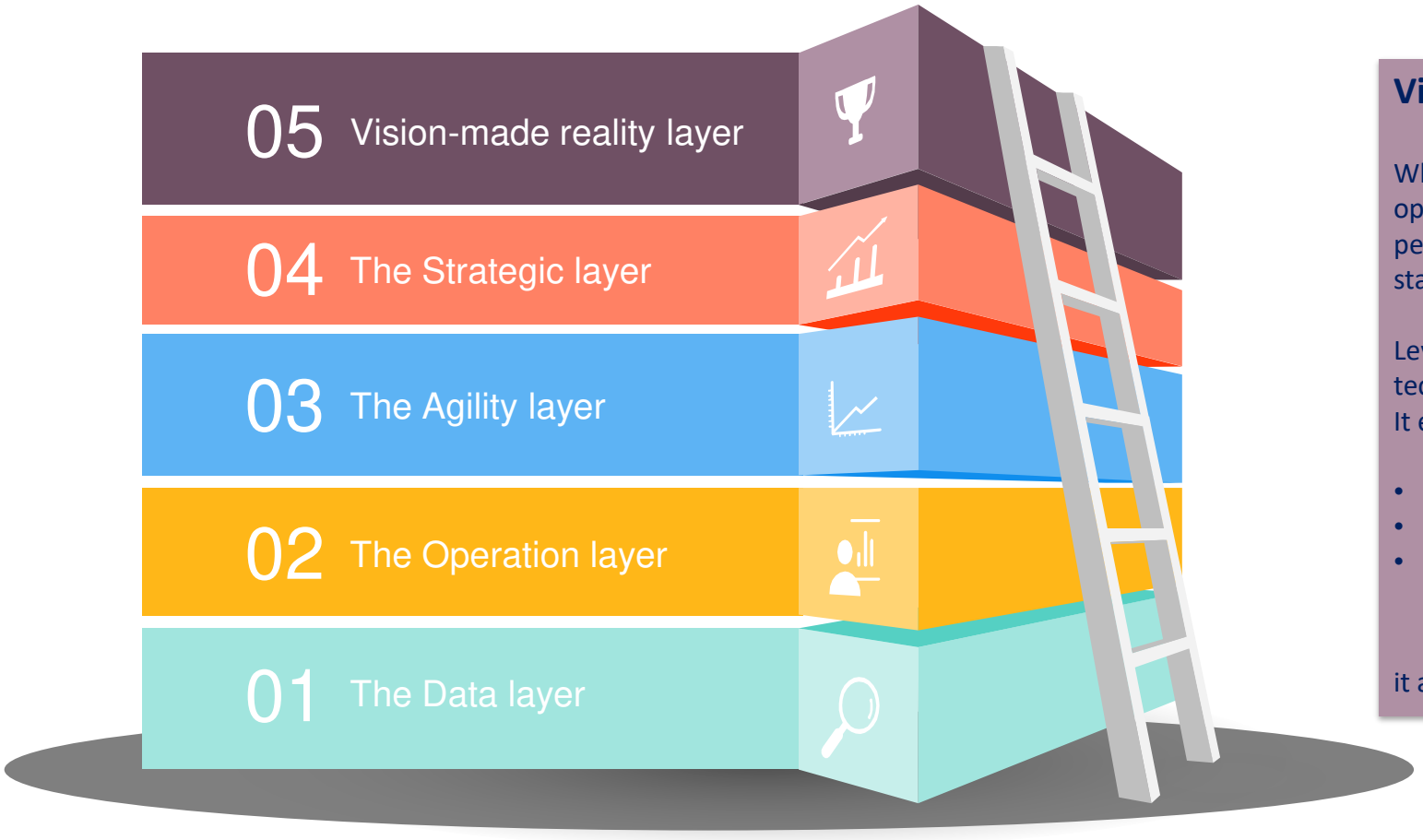

Vision-made reality layer

While we need to continuously sharpen our understanding of digital opportunities, we also need to build a vision of how machines support people, of how they can simplify and enhance the work of buyers, stakeholders and suppliers and deliver better value to clients.

Leveraging data, moving to the cloud, and strengthening digital technology capabilities help procurement deliver on its vision.
It enables:

- delivering efficient operations and a great user experience
- adapting rapidly to contingencies
- solving strategic problems and delivering breakthroughs

it allows us to Re-imagine procurement.

Going ahead: a few principles

A vision for humans

Create a vision centred on humans, not on machines.

This vision needs to describe how performing complex collaborative activities delivers outstanding business contributions.

Do the right things

With digital technologies it is tempting to focus solely on efficiency and control.

Doing things right is fine, but at the same time it is key to do the right things, to strengthen the key business contribution of procurement.

Get the foundation right

Think carefully about your digital infrastructure and the data layer.

Make sure you have the right foundation in place to create further value.

Think beyond the obvious

It is key to develop a portfolio of digital projects which combine quick wins, offering immediate cost benefits with more daring projects that can bring differentiation to the business.

Thank you