



5G: Levelling The Playing Field For Industry

Part I – Reshaping Operations

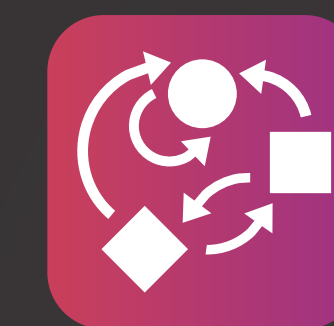
Communications, Media & Information Services



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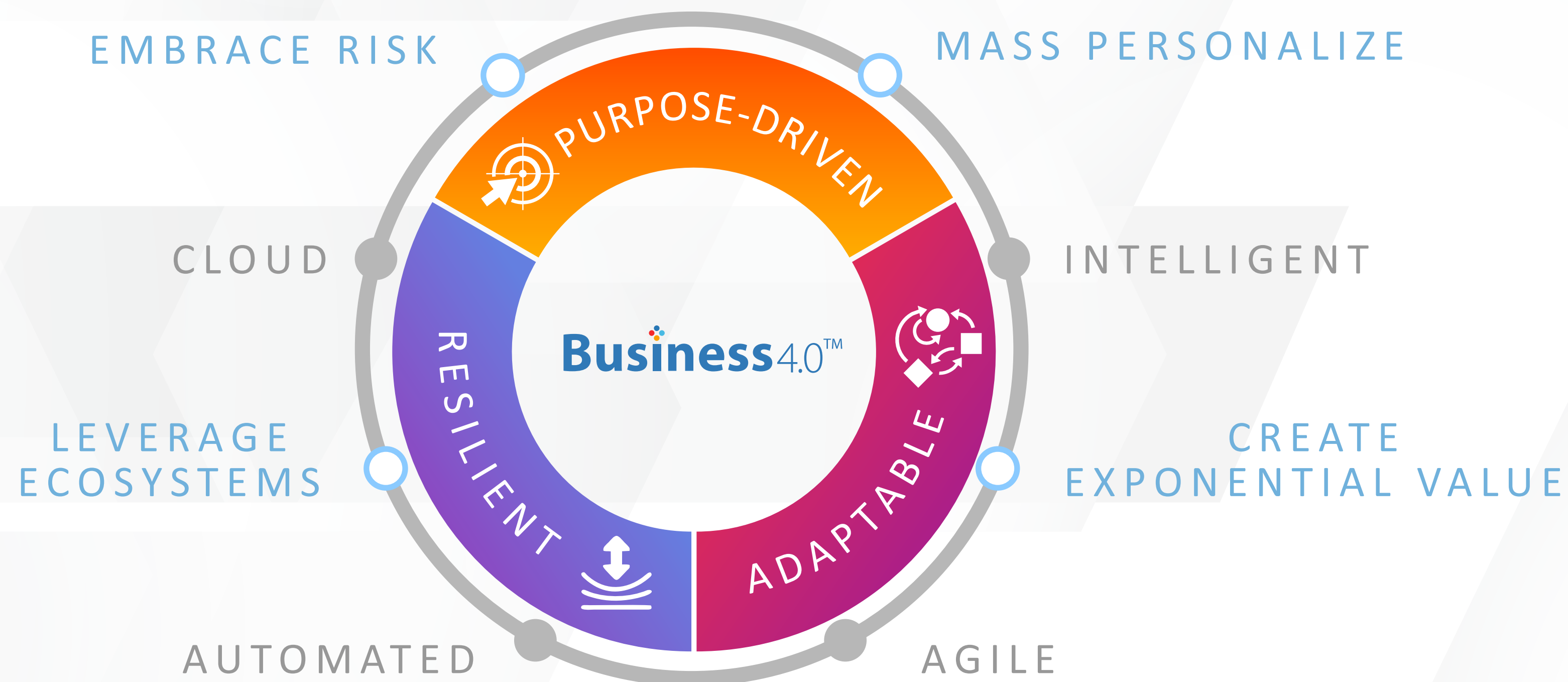
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Executive Summary

In the post pandemic world, distance has become irrelevant as every aspect of an enterprise can be managed remotely from boundaryless workplaces to the factory floor and retail shop. 5G and the complimentary technologies of AI/ML, XR and IOT provides enterprises the capability to take the workplaces to the doorstep of an employee or a customer. It provides security, enables smart factories that can be operated remotely and virtual retail experiences.

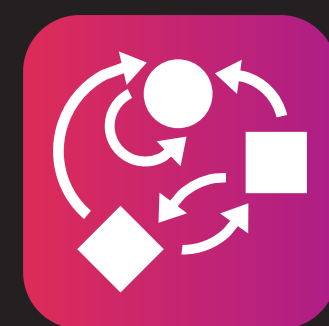
All the same, the adoption of 5G by traditional industries – such as mining, store retail and manufacturing – is limited, as a large part of the activities and functions tend to be physical in nature. In this two-part series we look at the potential of 5G, as a metaphor that signals industry and product transformation. In part I, we look at successful industries and lay out a framework for easy adoption and implementation. In part II, we will look at how to accelerate monetization.¹



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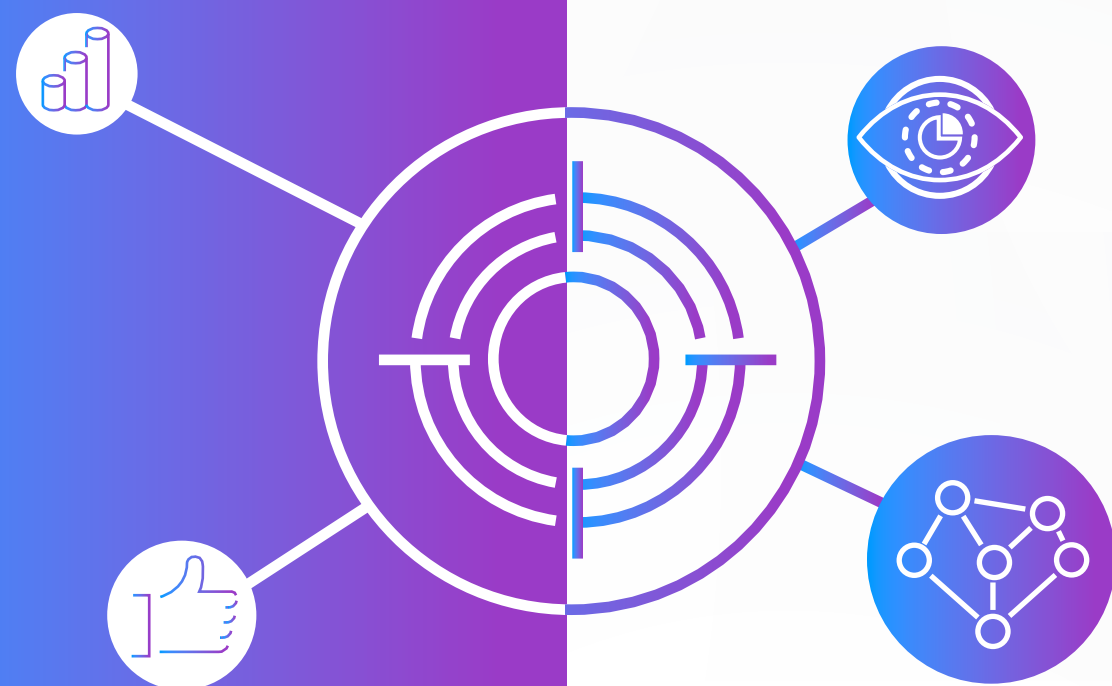
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[1] <https://www.tcs.com/5g-network-monetization-strategy-telecommunication-providers>

Networks of the Future

In the last few years, 5G has created enough hype about being the fastest-ever networking paradigm built. Yet, the business case preparation for 5G is not straightforward. Most enterprises are struggling to craft a network-centric business case for 5G.

For instance, in the telecom sector, companies have been prepping themselves up for the unveiling of 5G networks, the possibilities of use cases that can be built around the technology being limitless. The early adopters are the ones who have taken a business transformation view whereby they have embraced 5G as a means to the end and not an end onto itself. It means building a business case that will help realise the outcome. It requires having a technology toolbox that includes 5G and other technologies to deliver the transformation journey. 5G is a key enabler, but it has to co-exist with a plethora of complementary technologies in the technology toolbox.

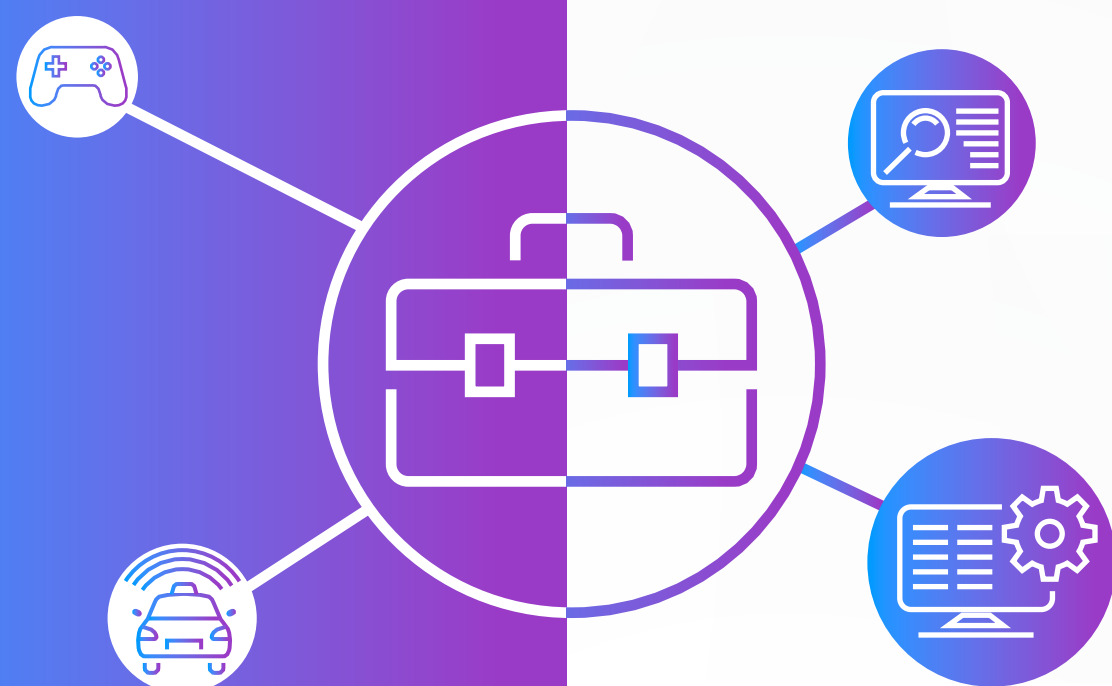


A Three-pronged Approach to 5G Implementation

#1 Reimagine products and operations

Find new ways of working and recast old assumptions about what is important and what is not. The business propositions enabled by 5G and its complementary technologies will be radically different from the ones before. The new propositions will be underpinned by the following considerations:





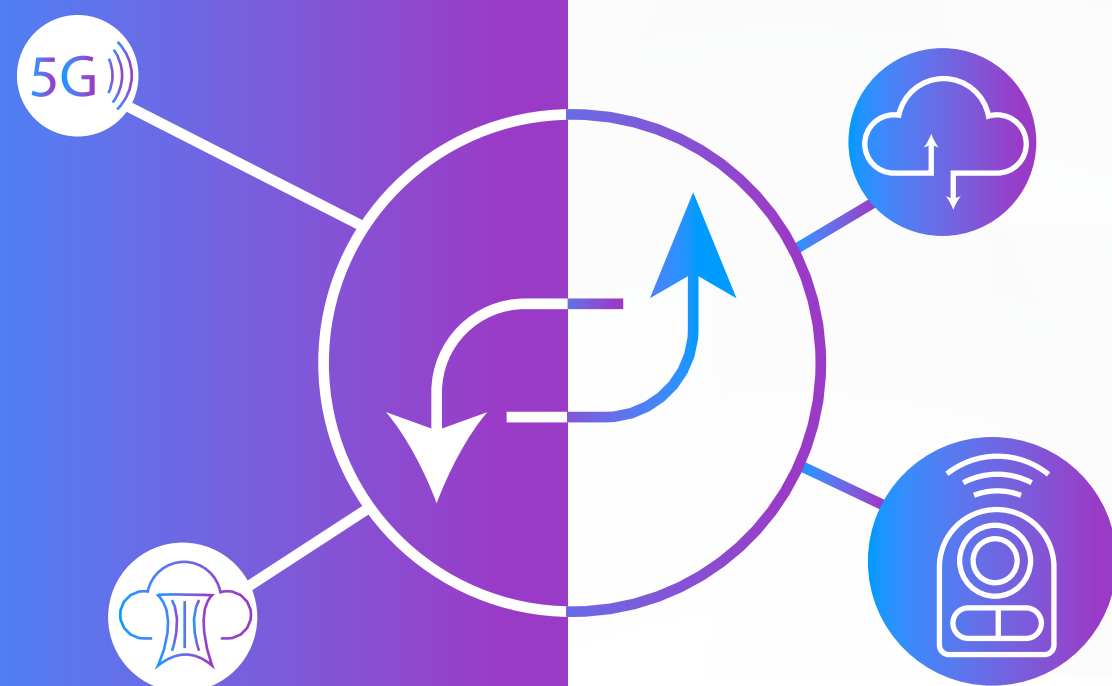
#2 Create a technology toolbox

Involving not just 5G but also a host of other complementary technologies spanning edge, IOT, AI/ML. For instance, for the B2C sector, 5G will mean more data, more experiential services like VR/AR, immersive gaming, and lower costs per GB. On the other hand, 5G for businesses will mean leveraging innovative solutions and technologies – sensors, devices, IoT platforms, edge analytics, and edge services – to transform productivity, radically lowering costs and unlocking new revenue streams. The technology considerations will vary depending on the need of the industry.

- **Real-time automation:** Will require a toolbox that leverages connected devices, assets, and sensors management, elastic service delivery infrastructure, and edge operations technology for executing autonomous actions by IoT devices, sensors, and industrial machinery control equipment. For instance, transforming a manual labor-intensive defect detection factory process to a machine vision-based system in a smart factory.
- **Monitoring and tracking:** Here companies will need services leveraging connected devices, assets, sensors management, edge operations technology, and data management for real-time visibility of connected assets and devices. Examples of early success here includes the

transformation of the physical security sector consisting of CCTV cameras with AI capabilities to be a real time digital surveillance system.

- **Connected vehicles:** Services focused on delivering telematics for connected vehicles, like vehicle tracking, health checks, configuration upgrades and diagnostics.
- **Surveillance and forensics:** Services leveraging connected devices, assets, sensors management, edge operations technology, data management, and managed security for behavioural analysis, fraud detection, and outlier identifications.
- **Immersive video:** Services leveraging edge operations technology, data management, and next-generation interfaces to deliver immersive AR/VR services like gaming, virtual training and virtual plant inspection.
- **Hazard and risk management:** Services leveraging connected devices, assets, sensors management, edge operations technology, data management, and managed security to predict and detect hazards and risky behaviours, assess larger impact, and drive automated remedial actions to mitigate the risk.



#3 Implement a change management strategy

A key ask for organizations planning their 5G journey is to implement a business change management program that looks at the transformation impact across the enterprise. Some key functions that need to be managed and that can be completely transformed include:

- **Remote operations:** 5G and the complementary technologies of AI/ML, XR and IOT can aid organizations to perform autonomous process tasks across a wide variety of industries.
- **Elastic service delivery infrastructure:** Interoperability between edge, on-premise, hosted, and cloud, is now deeply integrated into the 5G system through a dedicated interface. This enables applications to be virtualized and deployed on a distributed infrastructure with the compute and latency sensitive functions deployed on the edge or on premise within the 5G core and the rest of application on the cloud.
- **Connected devices, assets, and sensors management:** 5G will standardize the way non-telecom connected devices interoperate and integrate with the 5G network. As some of the applications that disrupt the industry will rely on

connected assets, devices, and sensors, their ability to work seamlessly with the 5G core for ultra-reliable, low-latency, and machine-scale communications is vital.

- **Edge operations technology:** The importance of edge in driving disruptive transformations for industries and for consumers cannot be understated. 5G creates interfaces that allow an application or function hosted on the edge infrastructure to process massive data pushed in real time. It also supports the compute power and if required, enables scaling out to other on-premise or cloud applications and instructs the respective services on what actions to execute, all within a latency band of a few milliseconds.
- **Data management:** Most of the transformative and disruptive applications unlocked by the 5G era would generate massive amounts of data that cannot be handled presently. 5G with its network slicing and application management functions can manage both application and streaming data traffic simultaneously without trade-offs. 5G's data storage architecture also provides standardized interfaces that allow applications to store and process the data within the 5G system.

- **Managed security:** As 5G provides standardized interfaces for edge and application interactions, the security aspects of authentication, authorization, and accounting (AAA) apply well for the next-gen network. This includes security context generation and distribution, confidentiality and integrity protection, control plane protection, and identity protection.
- **Next-generation interface applications:** With its seamless integration between edge computing and the core system, 5G facilitates applications to be distributed across hybrid infrastructures. This capability is especially conducive for next-generation interfaces like AR/VR.





Conclusion

Although 5G has been the talk of the town for the past few years, we are yet to see enterprises realize their full potential. Industries seeking to exploit the technology for efficiencies and transformations will need to embark on a new wave of modernization initiatives. Two of the most striking value propositions unlocked by 5G technology is resilience and reliability. 5G enables organizations to build resilience by providing an ultra-reliable and high-speed connectivity fabric for secure service delivery. More importantly, 5G standardizes integration with other complementary technologies like IOT and AI/ML and this helps enterprises to build resilient products and processes like remote command center for a smart factory or smart refinery. In the pandemic-struck economy, hi-tech verticals such as software development companies, BPOs, healthcare, and banking were considerably in a better place to switch over to remote operations. However, for traditional organizations options for resuming business were scarce. The value propositions of 5G will play an important role in future-proofing operations.

About the author



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Naren is an Industry Advisor for Communications and Media industries, focussed on helping organizations transform and innovate in a competitive marketplace. Naren has 13 years of experience and holds an MBA degree from Warwick Business School.

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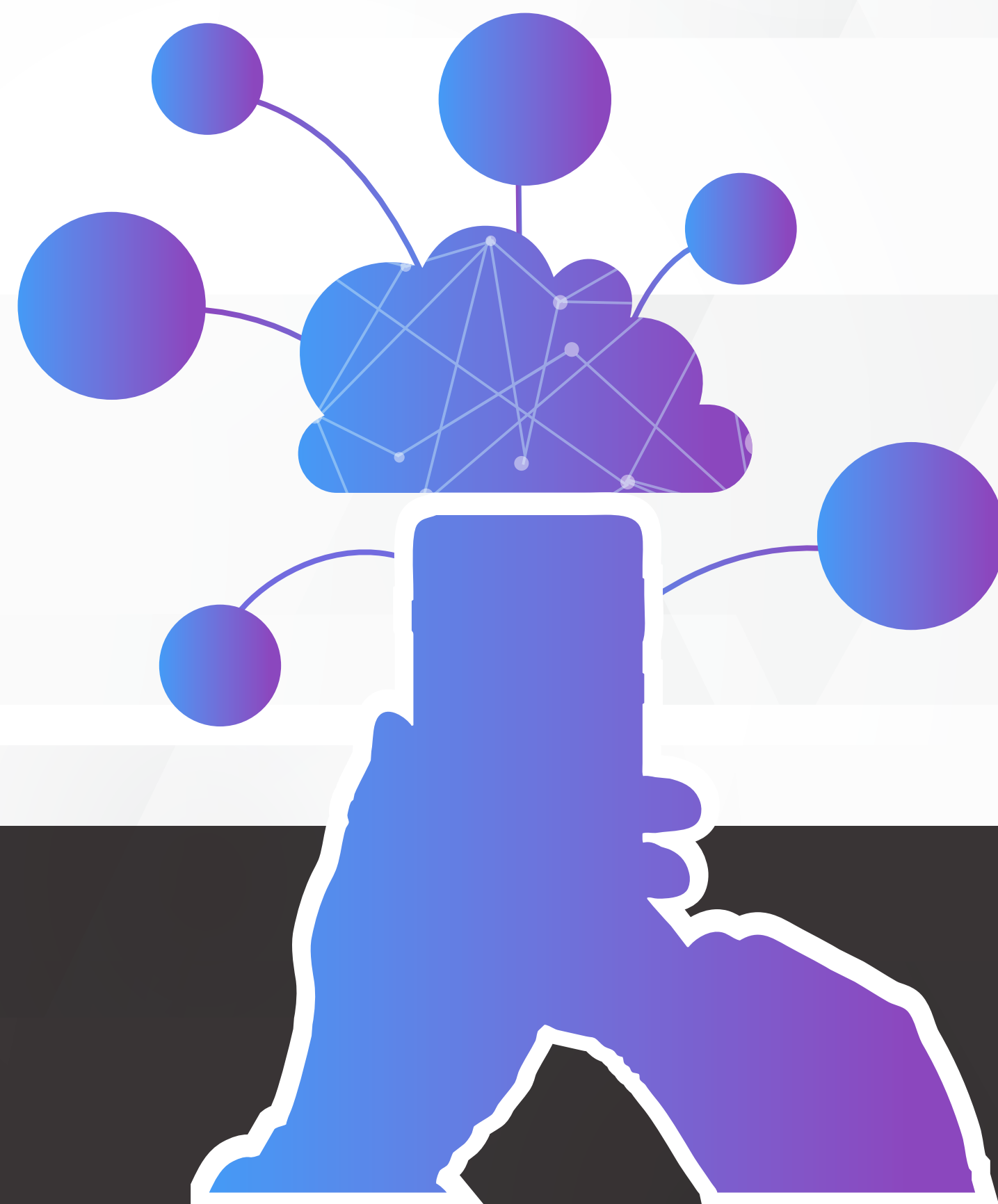
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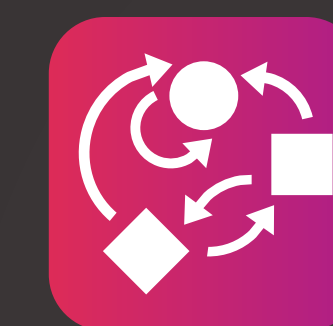
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