Cognitive telcos – a holistic approach to using data for business transformation

Abstract

High-speed fixed and mobile data networks are at the core of the digital revolution. But revenues often bypass the network operators who built them as they are perceived as mere utility players.

It is imperative that telcos reinvent themselves and reassert their place higher up in the value chain as a cognitive telco-- firms which make use of joined-up intelligent systems that can sense, infer and reason, and respond to data.

This white paper explores what it means to be a cognitive telco, and how to broach the necessary transformation. While there is no one size fits all template, we believe that our proposed framework is an holistic approach.

Automation in telecommunications

The strategic choices facing today's telcos are outlined in the joint paper by Harvard Business Review and TCS Making the Smart Call: Telcos Plot their Digital Future.[1] Whichever approach – or combination of approaches – telcos take, embracing data insights and automation will be fundamental to success, particularly when facing competition from digital-native tech companies and platforms.

The two major stumbling blocks facing telcos are corporate silos, and a focus on technology rather than how best to apply it. For example, sales teams will use data from their departmental silo to predict customer churn whereas, engineering departments will use their data for predictive maintenance. Hence it is important for telcos to evolve an enterprise wide AI-based automation journey to deliver effective business outcomes.

At an early stage of their journey, telcos may use advanced software systems to better design, deploy, control, run and maintain their network and operations. But the end goal with cognitive automation is for operations to run without human intervention and become zero-touch.

Each stage of this evolution produces a qualitative difference in the nature of the insights provided.

- **Process automation:** algorithms replicate human tasks such as order entry, basic event monitoring or data capture.
- **Reactive autonomy:** involves software that can assimilate existing data and act accordingly. Examples include processes such as compliance checks or onboarding new subscribers.
- **Proactive autonomy:** looks at the business in real-time, for instance to predict churn and take pre-emptive action to retain customers who are at risk of leaving. This level of automation is widely deployed among telcos.
- **Prescriptive autonomy**: involves algorithms that make deductions from data and respond to them. Many of today's media enterprises use this level of AI to understand customer preferences and to personalize their service.

[1] https://hbr.org/sponsored/2019/05/making-the-smart-call

- **Cognitive autonomy:** this occurs when data and intelligence is shared across the entire company, giving a 360-degree view of every operation and interaction. At this level, AI-enabled systems can sense a network event, identify its root cause, deduce the implications and come up with a response autonomously. Cognitive autonomy takes the human out of the decision loop making it zero-touch.

  Cognitive autonomy entails powerful AI and learning algorithms that can predict who among the customer base will subscribe to a new product line, recommend suitable product features, and suggest the best marketing mix to maximize returns.

The result is a sustainable, self-perpetuating model that continually draws on information to optimize business and network operations.

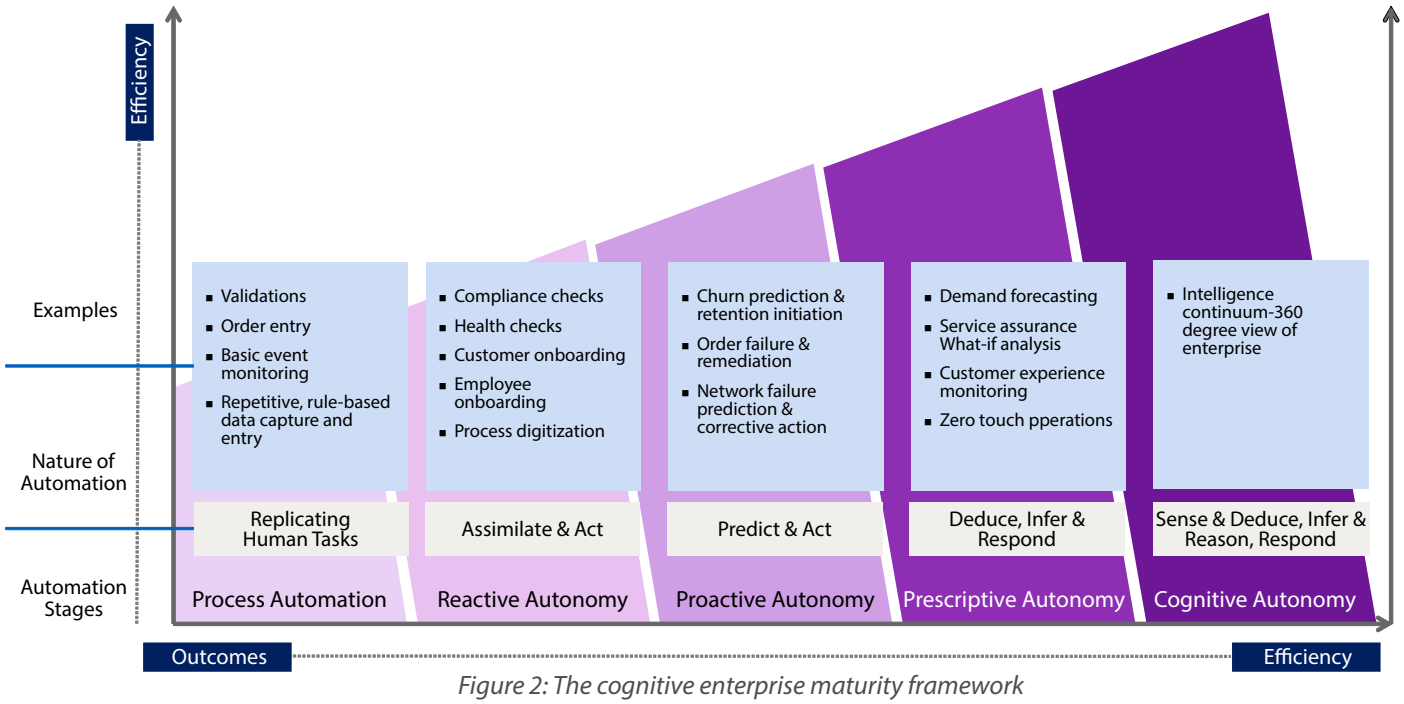

Figure 2: The cognitive enterprise maturity framework

Strategic approaches for becoming a cognitive telco

The journey toward cognitive operations should begin with an objective assessment of where the organization currently stands in the broader cognitive enterprise maturity framework.

Based on the maturity of the organization, there are four fundamental approaches to shape the firm's AI and automation strategy. These models enable gradual evolution, building on each other and the organization's needs as required.

Purpose-centric approach: This is the first step many telcos take. Typically, the process starts with a function which is under-performing. Customer care is a frequent starting point for AI automation.

The purpose-centric approach builds on existing investments in technology and is a good way of proving the business case for cognitive. However, there is a risk of creating isolated 'cognitive islands', leading to duplication of efforts or, worse, different transformation approaches across the business.

It works best for telcos that already have a common vision for AI strategy and relevant policies and structures in place, allowing them up to the next level on the maturity spectrum.

Centre of Excellence (CoE): This approach creates a core team of interdisciplinary experts who will become consultants to the rest of the organization, providing the governance framework and guiding cognitive transformation projects. Effectively, the COE does all the legwork so cognitive projects can hit the ground running.

The CoE approach is the most suitable for telcos that are at an advanced stage of maturity. However, if an organization has well-entrenched corporate silos, change management may be needed to overcome these internal barriers before a CoE can successfully make inroads across the organization.

Platform approach: This strategy involves creating dashboards and models for cognitive automation that can be adapted as the organization's maturity increases.

Like the CoE, this is a company-wide undertaking, which aims to use common platforms for cognitive automation. The platform approach can be used to pull information together across data silos where they do exist, overcoming internal boundaries.

The platform approach is a top-down model which will ultimately result in a high level of interoperability between functions and help make vertical and horizontal divisions in the company fluid. However, this has to be approached carefully, as a step-by-step process in organizations where these boundaries are still very solid.

Data custodian approach: The data custodian role is an evolution from the CoE strategy. It involves creating a separate organization to take ownership of data, AI, ML and automation, in charge of transforming the telco. It is, by definition, interdisciplinary.

This approach is suitable for network operators aiming to make the leap from process automation to cognitive at a high pace, but where the availability of skills is a challenge. It is also recommended for organizations where data poses a regulatory or business risk, and therefore needs to be managed tightly.

The data custodian strategy consolidates skills in one division, which can then take care of an entire spectrum of decisions and strategies across the organization.

Summary

The opportunities for cognitive enterprises in the telecommunications sector are enormous. But maximizing the potential of cognitive means thinking big.

CEOs and CXOs should ask what they need to do to institutionalize an operating model for data – looking at organizational structures, people strategy, business capabilities, governance, a technology roadmap and their business values.

But they must also be realistic when it comes to their company's stage of cognitive maturity, and tailor data strategies accordingly – rather than over-reaching the organization's capabilities.

An enterprise-wide, holistic approach will ensure that it is the business benefits that drive AI technology, rather than the other way around.

Responsible and ethical AI: the big picture

Trust is at the heart of customer relationships.

Like a bank or an insurance company, telcos bear a great responsibility to keep this information safe and to use it ethically.

As enterprises become increasingly driven by advanced cognitive capabilities, there is an urgent need to put appropriate guardrails in place. Telco leaders need to consider the big picture, anticipate ethical, reputational, regulatory and security risks, and mitigate them in advance.

These are just some of the questions that senior management of aspiring cognitive telcos should be asking:

- How do you design systems and processes that ensure the responsible use of AI?
- What is the ethical framework for your systems?
- How do you ensure the algorithms you use aren't inadvertently introducing or reinforcing biases, based on gender, race, social status, or other factors?
- Can the decisions the AI makes be explained and justified?
- Do you have the right people and data to train your AI?
- What skills, training, support and leadership will they need?

Ultimately, all these aspects boil down to the fundamental question – what are you doing to make sure your business is running the AI, rather than AI running your business?

About The Authors

Kamesh Chelluri

Lead – Next-Gen Advisory Services for Communications, Media, and Information Services

Kamesh brings on board over two decades of global experience working with Fortune 500 companies and startups, now developing digital transformation strategies for clients.

Narendran Sivakumar

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

Contact

Visit the Communications, Media & Technology page on www.tcs.com

Email: global.cmi@tcs.com

Blog: Next Gen CMI

Subscribe to TCS White Papers

TCS.com RSS: http://www.tcs.com/rss_feeds/Pages/feed.aspx?f=w
Feedburner: http://feeds2.feedburner.com/tcswhitepapers

About Tata Consultancy Services Ltd (TCS)

Tata Consultancy Services is an IT services, consulting and business solutions organization that delivers real results to global business, ensuring a level of certainty no other firm can match. TCS offers a consulting-led, integrated portfolio of IT and IT-enabled, infrastructure, engineering and assurance services. This is delivered through its unique Global Network Delivery Model™, recognized as the benchmark of excellence in software development. A part of the Tata Group, India's largest industrial conglomerate, TCS has a global footprint and is listed on the National Stock Exchange and Bombay Stock Exchange in India.

For more information, visit us at www.tcs.com

All content / information present here is the exclusive property of Tata Consultancy Services Limited (TCS). The content / information contained here is correct at the time of publishing. No material from here may be copied, modified, reproduced, republished, uploaded, transmitted, posted or distributed in any form without prior written permission from TCS. Unauthorized use of the content / information appearing here may violate copyright, trademark and other applicable laws, and could result in criminal or civil penalties. **Copyright © 2020 Tata Consultancy Services Limited**

TCS Design Services I M I 02 I 20