Revenue Assurance

Roaming risk and opportunity, leveraging IR.21 and IR.85

The introduction of a

new GSMA RAEX schema

The CORTEX intelligent automation platform is designed specifically to enable companies to automate their current manual processes rapidly, efficiently and at low risk.

Maintaining configuration data from partner operators can be complex, time-consuming, and error-prone. Errors introduced can cause loss of service, lost revenue and unnecessary rework.

The introduction of the new GSMA RAEX schema means more frequent updates, with more opportunities for making mistakes in updating internal applications and elements.

Having consistent, highly automated processes is key to saving millions* and avoiding costly mistakes.

This is the staple benefit that automation platforms like CORTEX offer the communications industry.

* Analysys Mason, 2021 estimated $3-5m per annum on average per operator.

How accurately, and how well

do operators do this today?

Almost every mobile operator today is signed up to the GSMA RAEX program, which means they receive updates on roaming and interconnection data in Word or PDF documents meant for people to read.

Teams of people are employed to receive the update notifications, to read and understand the impact upon their applications and network configurations, and to manually apply any necessary changes. Errors and omissions creep in, through misreading or misunderstanding the presented data, through mis-keying the correct information during data entry, or through missing or forgetting to apply an update entirely.

Such errors can cause problems for inbound roaming subscribers to access services they should be able to – leading to lost revenue for both their home network operator, and the visited network operator. They can also cause problems in allocating costs incurred to operators by roaming subscribers to the correct partner interconnect account, and in issuing interconnect bills to the correct home operators, resulting in at least a delay, if not a total loss, of revenue.

Over time these errors accumulate to such an extent that a manual, time-consuming audit is initiated to re-align everything with a GSMA 'golden record'.

Automating the handling of GSMA RAEX updates can deliver consistent, reliable and rapid updates to operator applications and network, eliminating the risks and errors associated with manual processing, reducing revenue leakage while improving roaming subscriber satisfaction.

How easy **will this be?**

The CORTEX intelligent automation platform is designed specifically to enable companies to automate rapidly, efficiently and at low risk their current manual processes. It allows companies to start small, with what they know; to identify and handle every process fallout in a structured manner; and to be self-sufficient in evolving the automations in response to these process fallouts.

This White Paper describes how you can implement best-practice automation to ensure all your systems are always up to date with the very latest RAEX data. You'll then be able to maximise your roaming revenues and also provide the very best possible service to your mobile device customers.

Best of all, you'll be able to basically forget all about IR.21 and IR.85.

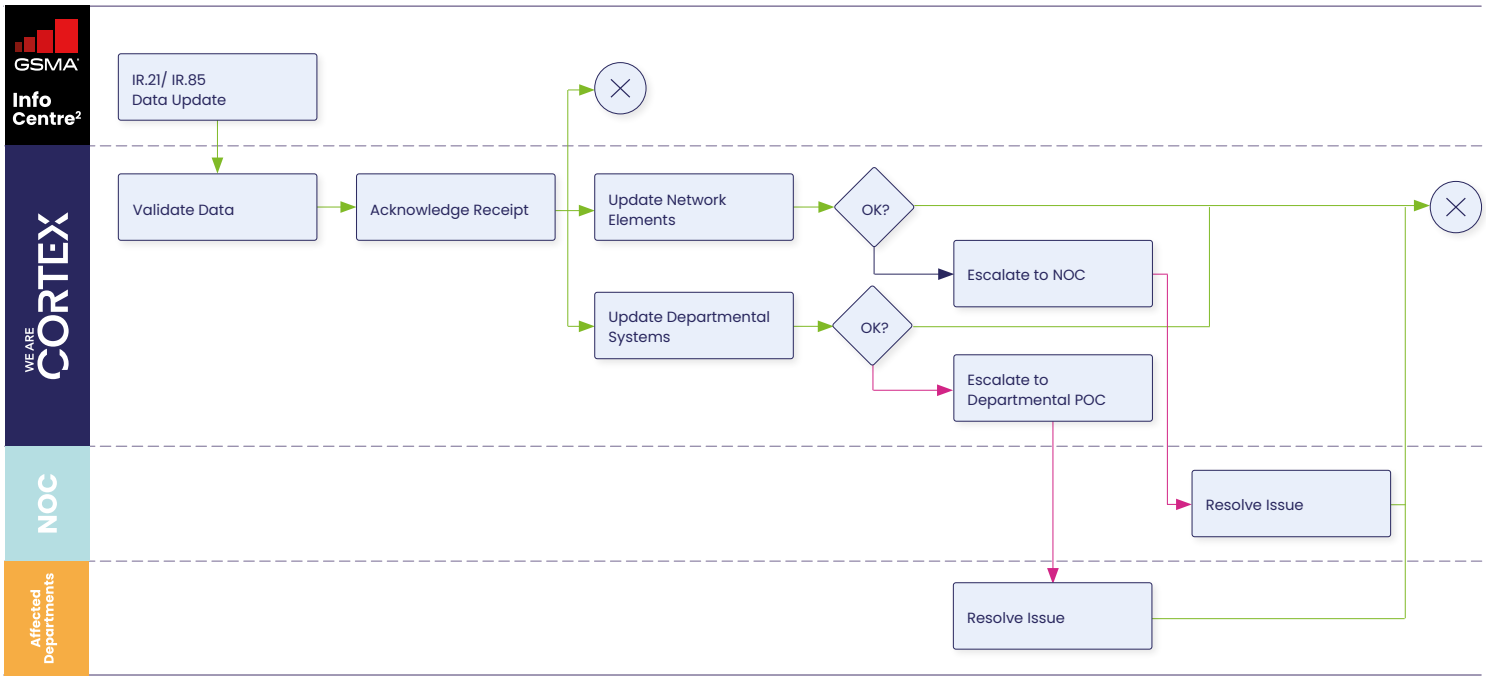

Figure 1:
Management by Exception with CORTEX

What are IR.21 and IR.85?

The IR.21 schema – which has, until now, only been available in PDF – lists the technical requirements and specifications for international mobile device roaming.

IR.21 also includes specifications for the technologies used to manage roaming, such as systems for SIM card provisioning, billing, HLR/ HSS, VLR, SMS and other forms of interconnectivity. These solutions enable seamless connectivity, predictable service quality, and reliable billing for roaming subscribers.

IR.85 is a data schema for Open SMS Hubbing interconnection, providing technical requirements and specifications for the seamless operation of this functionality.

Both data schemas are therefore critically important technical documents supporting international roaming. Your MNO must maintain its own, unique version.

However, with hundreds of roaming partners and over 30 new IR.21 releases per week, keeping your network elements up to date is highly resource intensive.

Yet, it's also essential if you are to safeguard revenues and ensure service quality.

Changes received from GSMA could affect a wide number of parts of your organisation and network; everything from the interconnect billing processes to the configuration of specific network elements (such as HSS or (G)MSCs or a host of 5G VNFs); changes will need to be scheduled for implementation at the date and time specified in the GSMA notification.

What are the changes

and what do they mean?

It's going digital

As of Q1, 2023, GSMA is making it mandatory for MNOs to use RAEX. It's already a well-adopted standard, with almost all operators now publishing their IR.21 and IR.85 interconnection data sets through it.

Also, and for the first time, the GSMA will now be providing access to this data from its InfoCentre, via APIs. MNOs will be able to both publish amendments to their own data directly, and also streamline the process of receiving updates from every other operator. This will, no doubt, lead to more frequent releases of IR.21 and IR.85 data for all, yet with fewer data updates in each iteration.

It's a major step forward

In the leading-edge world of mobile networking, why has it taken until 2023 to properly digitise these data sets?

And how come we're still employing teams of people to perform manual updates from PDFs in our supposedly technologically advanced sector?

It should eliminate human error

Whatever the reasons, the GSMA's new provisions will help prevent the problems caused by keying errors, as your people manually update your systems with IR.21 and IR.85 data from PDFs.

For example, a typo in a number range might mean your roaming customers can't connect to whoever they're trying to reach. Or, alternatively, perhaps they'll be unable to use some of the services their contract is supposed to offer – data, or 5G, for example.

Also, you might be connecting your customers via MNOs that are not your currently favoured roaming partners. Moreover, there have been instances when hackers have successfully obtained free service provision due to mis-keyed data.

In all these cases, you'll be losing revenue and, in many instances, you'll also be delivering poor service.

Failure to keep
IR.21 & IR.85 data up to date means...

- $3-5m in annual revenue leakage from service errors and delays*
- Higher cyber risks from fragmented, inconsistent configurations
- Service quality issues and disappointing customer experiences

* Juniper Research, 2022

How you can take
advantage of the changes

Update all the new data across all your systems

In addition to those front-line service issues, you also have to propagate all the data updates across all your other business systems. If you don't do that effectively, there's scope, for example, to provide great service, but then fail to bill for it properly because your back office has the wrong data.

So, as well as accurately ingesting all the IR.21 and IR.85 data updates, you also need to know how to apply them across your internal systems, and then go and update them.

And you need to do that with every notification of updates from GSMA. Today, that typically calls for data tooling and laborious manual processes to ensure that every system component has up-to-date information.

What processes are in place at your MNO? And how do you think you'll fare as the frequency of updates increases from the current level, of more than 30 per week?

"CORTEX's centralised automation platform enables you to ingest IR.21 and IR.85 data in real time – direct from RAEX – and then orchestrate its delivery across all your systems simultaneously."

The benefits of
automating with CORTEX

Automate with CORTEX to achieve major competitive advantages

As the GSMA brings its RAEX delivery into the 21st century, there is now an opportunity to get rid of your costly manual processes. You can eliminate the inaccuracies and resulting risks of data entry, and you can also propagate the data throughout your business, in the right way, effortlessly. The result will be dramatic financial gains – from both reduced costs and better revenue management – as well as stronger security and improved customer satisfaction.

CORTEX makes it easy - yes, easy

CORTEX's centralised automation platform enables you to ingest IR.21 and IR.85 data in real time – direct from RAEX – and then orchestrate its delivery across all your systems simultaneously. You can harness CORTEX's powerful and easy-to-use process automation tools to set this up quickly. And you can do so in a way that's guaranteed to succeed, where typical approaches to automation would definitely fail.

Let us automatically manage updating your databases, applications and network elements at the right time, as specified in the GSMA notifications and adopt a "Management by Exception" approach (see Figure 1): when there is a problem that CORTEX cannot resolve in performing the updates it can autonomously escalate that to the relevant department within your organisation, and can track their progress towards its resolution.

Don't waste effort chasing your tail

The most common automation strategies rely on continually auditing current systems as you also attempt to update them. Your already overloaded engineers will end up running in circles as they strive to balance their extra audit workloads with system improvements, and so create constantly moving targets. Moreover, most automation relies on hard coding, which takes too long to create and is inflexible to change.

Self-managed workflows and faster processing of updated data

CORTEX will quickly enable your business to automatically ingest RAEX data. The increasing frequency of updates just won't matter to you because the data will be processed effortlessly, and updated in real time across your business. These workflows will be entirely self-managing, ensuring your data will always be fully up to date across all your back-office systems. And that assured accuracy in IR.21 and IR.85 configuration will enable you to improve compliance, maximise your roaming revenues and manage risk more effectively.

FAILURE
TO KEEP UP WITH
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$5m
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Juniper Research, 2022

Figure 2:
An Automated Approach

Automate first!

Why CORTEX is best

Pin the tail down and then stop it wagging

The simplest, fastest and most effective way of achieving success is through an 'automate first' approach. With CORTEX, you can automate any part of your existing process as a starting point. There's no need for exploratory audits to figure out what's wrong. You simply replace each of the manual steps in the overall process with automated ones.

You can design and implement such automation flows very easily. CORTEX provides a highly intuitive, graphical, drag-and-drop user interface, which is based on standard process-mapping symbols.

That means your existing manual processes will continue to work – as usual, ensuring that nothing gets forgotten about during the transition – until they are automated away. It also means you can maintain complete human oversight, even after all your process gates have been automated.

Moreover, the CORTEX platform has powerful exception-handling capabilities. So, whenever something unexpected happens, with no known precedent, the incident is flagged and escalated to an appropriate human operator. It can then be managed by them and also accommodated in the automation flow for the future. Over a short period of time, that means you can ensure that all possible scenarios are covered – and that all your IR.21 and IR.85 data is channelled into the right places.

The beauty of this approach is that it accommodates all your fragmented and system-oriented needs perfectly. You can automate specific tasks around specific systems, enabling almost any manual data process to be automated.

Also, and as your technology evolves over time, you can then update your automation with ease. CORTEX automation flows are modular and can be edited and reused. You simply make a copy from the CORTEX system repository, use the intuitive user interface to amend it, and then have it approved and implemented. There is no need to roll back months of work and start again on hard-coded automation.

Your blueprint for

IR.21 and IR.85 success

CORTEX recommends the following five-point process to ensure maximum success as quickly as possible:

1. Identify all the current RAEX data handling processes that need to be automated

Create an inventory of all the manual activities that are part of your current IR.21 and IR.85 update efforts. This will create a checklist for all the things you need to automate.

2. Develop a transition plan which achieves a step change towards automated operations

Decide what parts of your current processes to automate first. Develop a plan to test your automation flows, and be ready to handle exceptions quickly and perform updates.

3. Create an operational readiness plan that considers system operation and maintenance

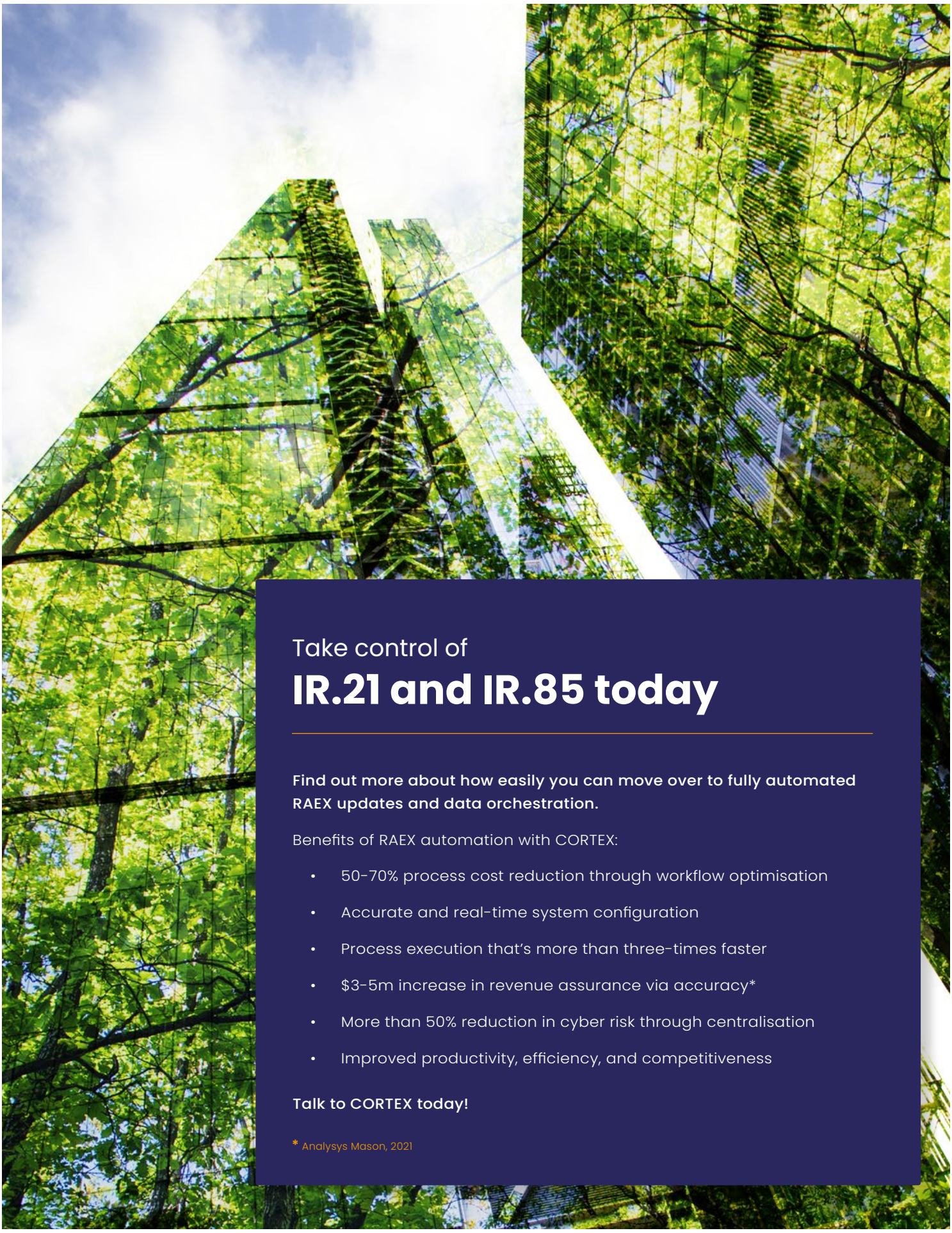
As you plan your journey to automated RAEX updates, build a clear vision for how your business operations will look during and after the change. Who will be performing what roles? How can you make the best use of your engineers' skills and knowledge? Where will you re-deploy your other employees?

4. Partner with a specialised automation vendor to implement the new platform

Before you choose a partner to support your automation, recognise that it is, first and foremost, a technical task. Yes, knowledge of IR.21 and IR.85 is important, but you probably already know everything you need to know about that. You need a complete package of knowledge on both the two data sets and how to automate your business processes in respect of that.

5. Train staff on the new operating procedures and on maintaining automation

You will also need support in moving your business forward and ensuring that all your people understand the purpose of the changes, the operational plan, and the technology.



Take control of

IR.21 and IR.85 today

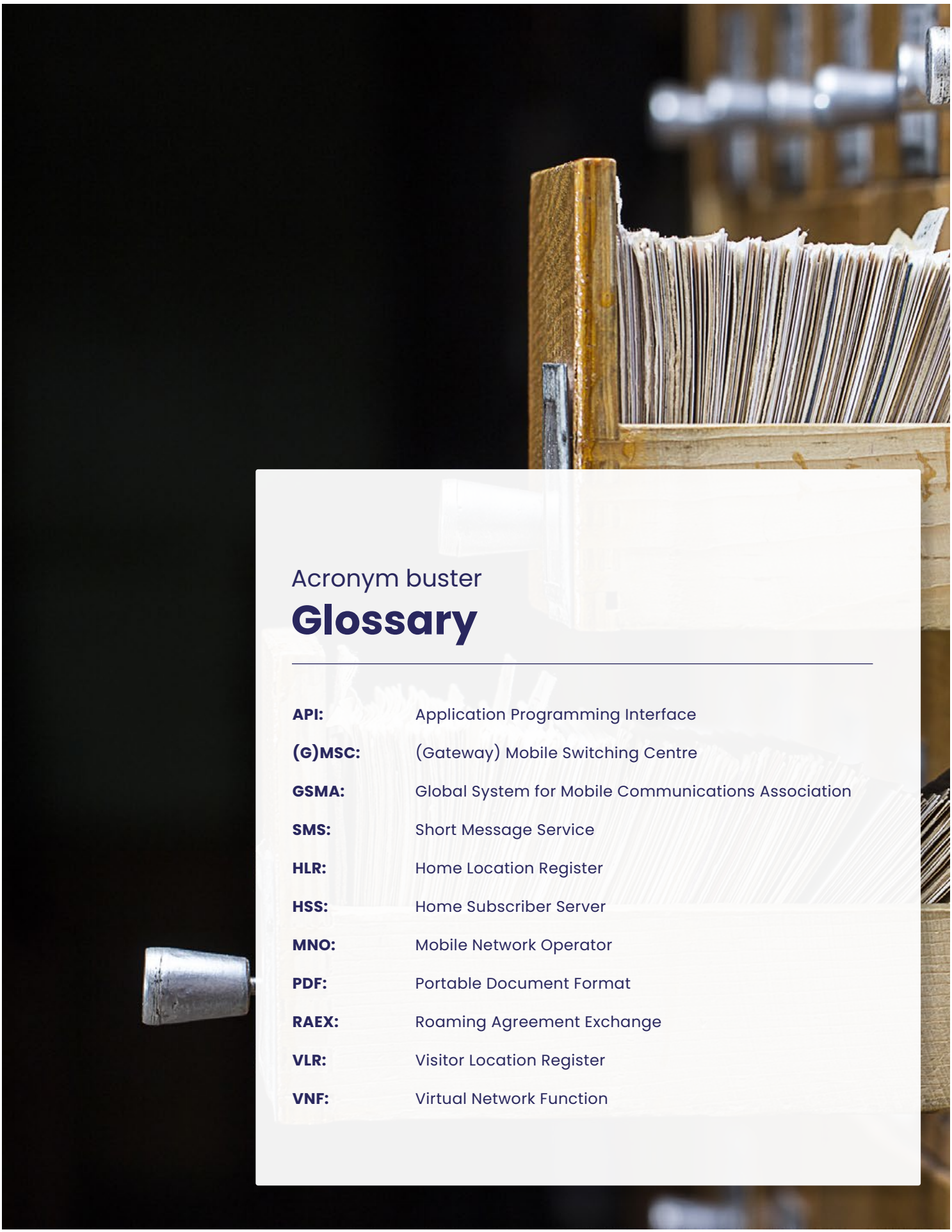
Find out more about how easily you can move over to fully automated RAEX updates and data orchestration.

Benefits of RAEX automation with CORTEX:

- 50-70% process cost reduction through workflow optimisation
- Accurate and real-time system configuration
- Process execution that's more than three-times faster
- $3-5m increase in revenue assurance via accuracy*
- More than 50% reduction in cyber risk through centralisation
- Improved productivity, efficiency, and competitiveness

Talk to CORTEX today!

* Analysys Mason, 2021



Acronym buster

Glossary

API:	Application Programming Interface
(G)MSC:	(Gateway) Mobile Switching Centre
GSMA:	Global System for Mobile Communications Association
SMS:	Short Message Service
HLR:	Home Location Register
HSS:	Home Subscriber Server
MNO:	Mobile Network Operator
PDF:	Portable Document Format
RAEX:	Roaming Agreement Exchange
VLR:	Visitor Location Register
VNF:	Virtual Network Function

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