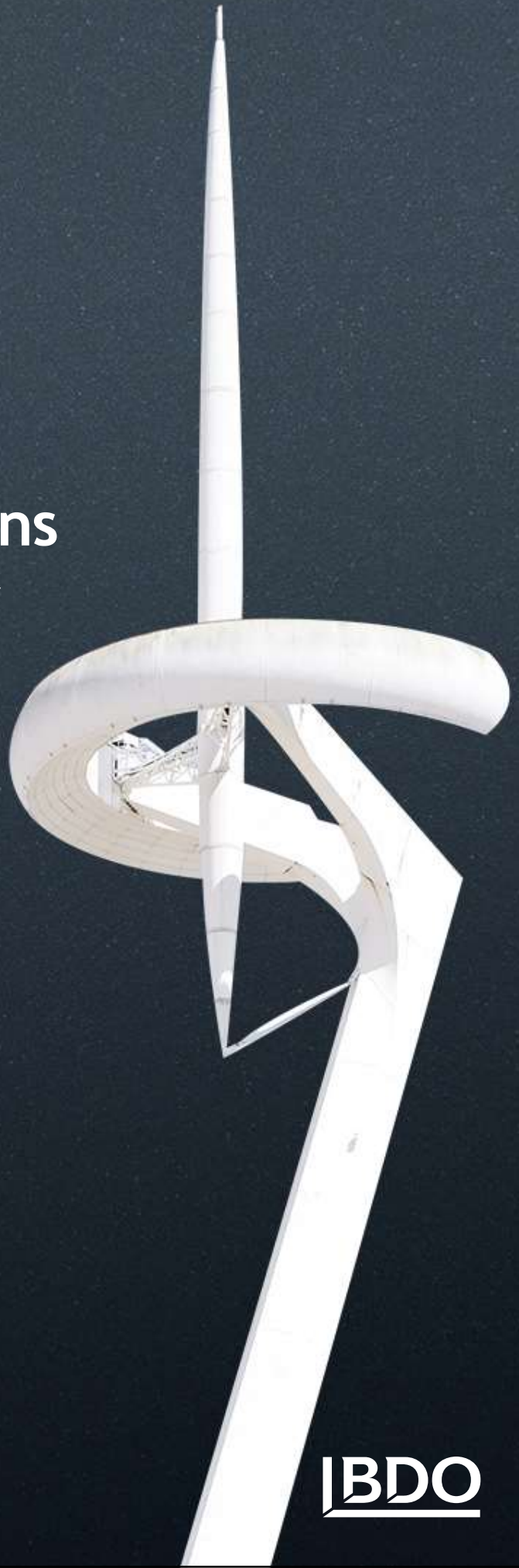


BDO's 2021 Telecommunications Risk Factor Survey

Risks in the new reality facing telecom
companies



Introduction

| COVID-19's many opposite impacts

As COVID-19-related changes ripple through the industry, challenges and opportunities abound for telecom companies. Initial positives include increased demand for services due to the likes of work-from-home and customers spending more time online. However, there are also areas where companies are seeing new risk exposures.

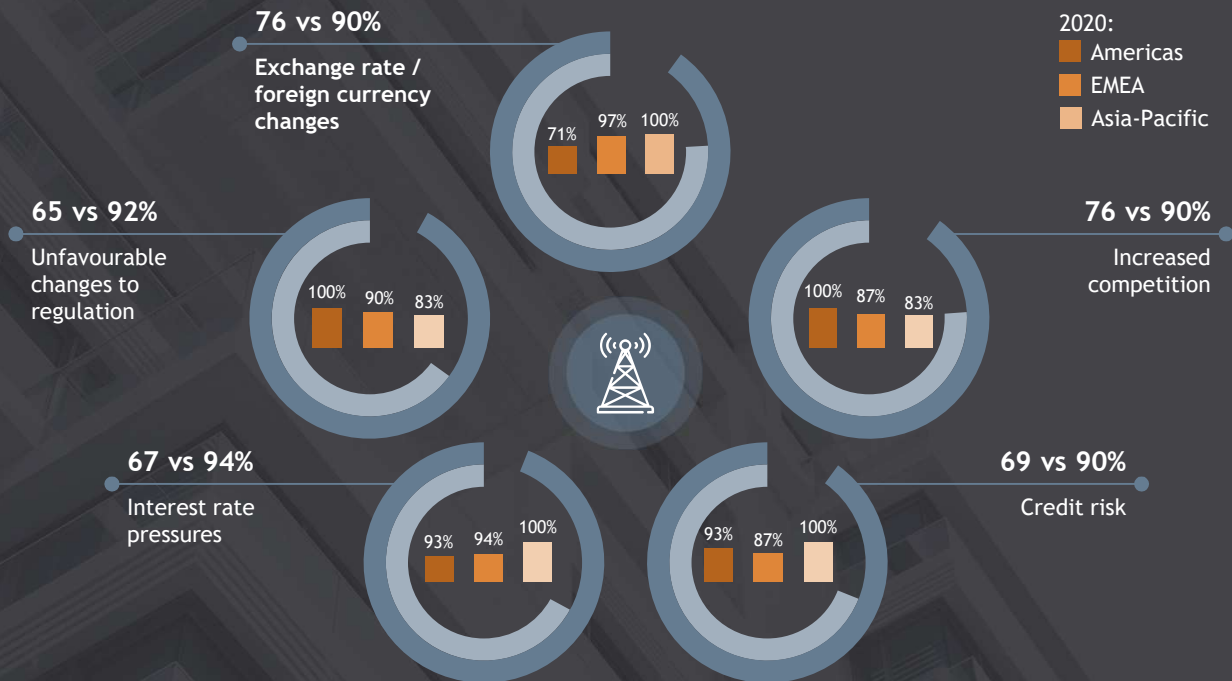


Christian Goetz,
Leader of the Global
Telecommunications team

✉ christian.goetz@bdo.de

Telecommunications Risk Factor Survey

Top-5 risks faced by telecommunications companies in 2018 vs 2020 globally



COVID-19-related risks for the telecommunications industry

COVID-19 put pressure on telecom operators in terms of the growing necessity of connectivity.



Inability to provide resilient connections



Limited productivity



Supply chain disruptions



Modified customer profiles

Technological advances are driving new trends



5G
 More resilient and stable connections with higher speed and lower latency.



Edge computing
 Tools and storage located closer to the end-users, which prevents disruptions in application operations.



UCaaS
 System of communication tools such as file sharing and instant messaging ensured by the cloud vendor.

Executive summary: changing risks

2020 led to challenges, disruptions, and changes for the telecommunications industry. Increased data security regulations and the vanishing line between telecom companies and technology providers contributed to an increased focus on innovative solutions, new partnerships, and transforming business models. The goal: to stay ahead of the curve and meet major challenges - including the impact of COVID-19.


BDO's 2021 Telecommunications Risk Factor Survey explores the risk landscape that telecom companies are facing. The report is based on risks identified in financial reports by almost sixty companies¹ that operate in the telecommunications industry across the Americas, EMEA², and Asia-Pacific.


TOP-5 risks of 2020


In the previous edition of the BDO Telecommunications Risk Factors report, the main risks affecting telecom companies were exchange rate/foreign currency changes, increased competition, the fast arrival of new technologies, access to finance, and interest rate pressures. In 2020, these risks were accompanied by economic uncertainties due to the pandemic and lockdowns, which lead to new issues, especially related to financial risks.

TOP-5 risks currently affecting telecom companies:

-  Interest rate pressures
-  Unfavourable changes to regulation
-  Exchange rate/foreign currency changes
-  Increased competition
-  Credit risk

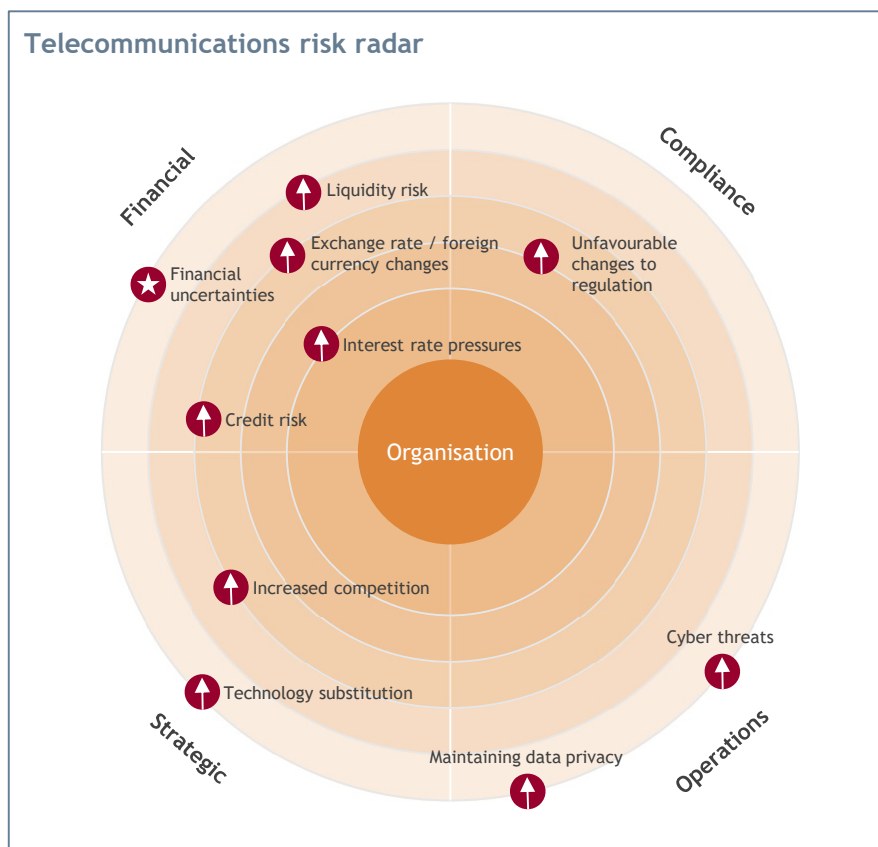
 Risk rank higher than previous edition

 Risk rank lower than previous edition

 Increased volume³ of risk compared to 2018

 New risk

Telecommunications risk radar



Notes: (1) Among 59 analysed companies, only 11 have posted annual reports for 2020 as of 1 September 2020 and 8 companies were not considered due to the lack of information; (2) Europe, the Middle East, and Africa; (3) The increased volume of risk is based on the comparison of the percentages of surveyed companies in 2018 and 2020

Telecom companies identify interest rate pressures as top risk



1. Interest rate pressures

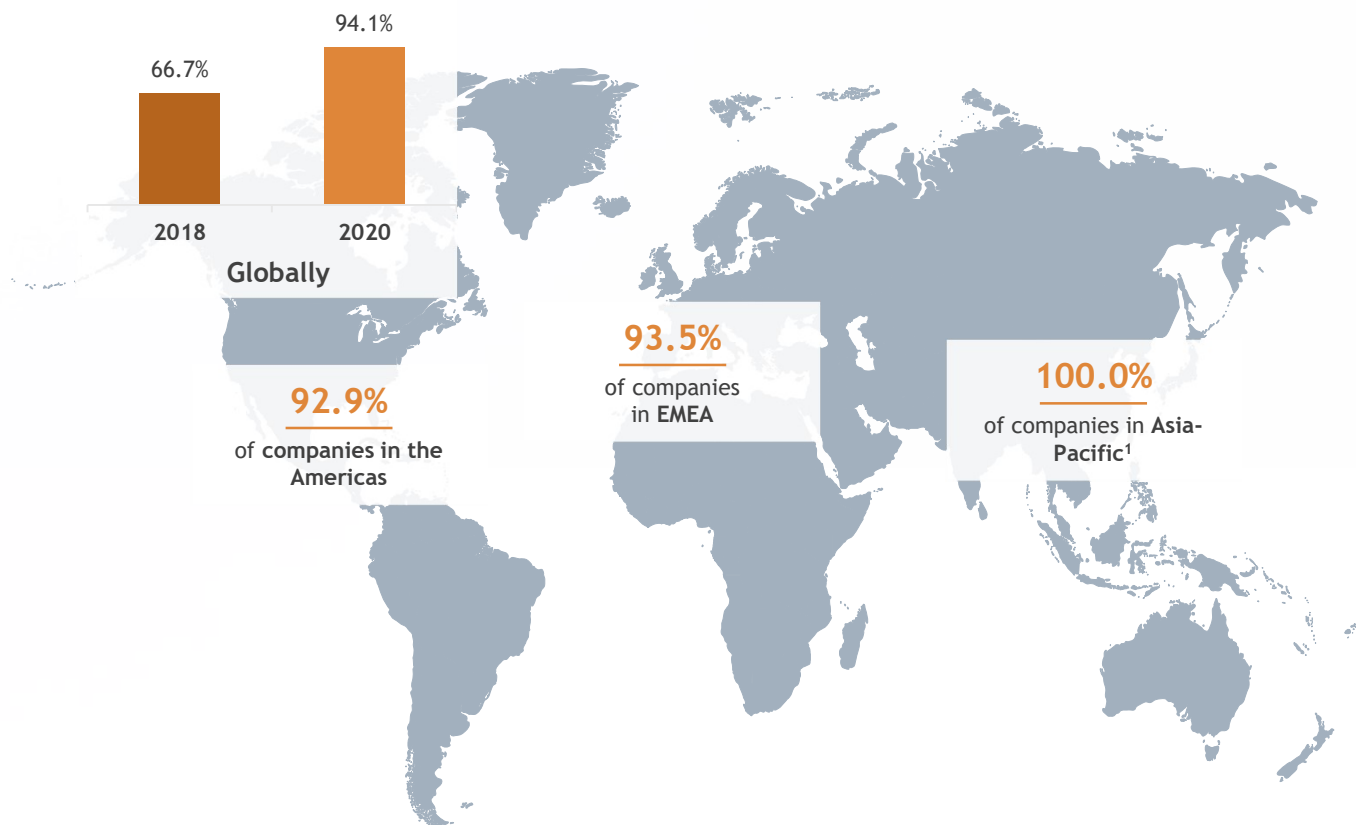
Fluctuating interest rates present a major challenge to telecommunications companies. They are capital intensive and often undertake large-scale M&A deals and infrastructure projects. Cash flows tend to be stable without big revenue spikes. The financial fallout of COVID-19 leads to increased capital requirements to cover interest rate risks.

Telecommunications companies often also have middle- and long-term investments at variable rates tied to an increasing number of M&A deals. All of these factors lead to high exposure to volatility arising from changing interest rates. Interest rate pressures were identified as a top

risk by 67% of telecommunication companies in 2018 to 94% in 2020.

The strong growth of the telecommunications industry and high capital expenditures push especially Asian companies to borrow money from international organisations, even if many loans carry floating interest terms. The pressure resulting from changes in interest rates is highlighted by 100% of analysed companies in Asia-Pacific (2018: 67%). Telecom companies in EMEA and the Americas also feel the increased relevance of interest rates and 94% and 93% of companies noticed it (2018: 66% and 69%, respectively).

Share of companies that identify interest rate pressures as a risk for their businesses



Inability to follow regulation changes can have financial consequences



2. Unfavourable changes to regulation

In the digital era, consumers have become increasingly concerned about personal information protection. Companies worry about both this and their own data protection. Telecom companies are often international and must consider every relevant regulatory change in all active markets. Implementation of new technologies and changing national security regulations are strategic priorities for countries across the world.

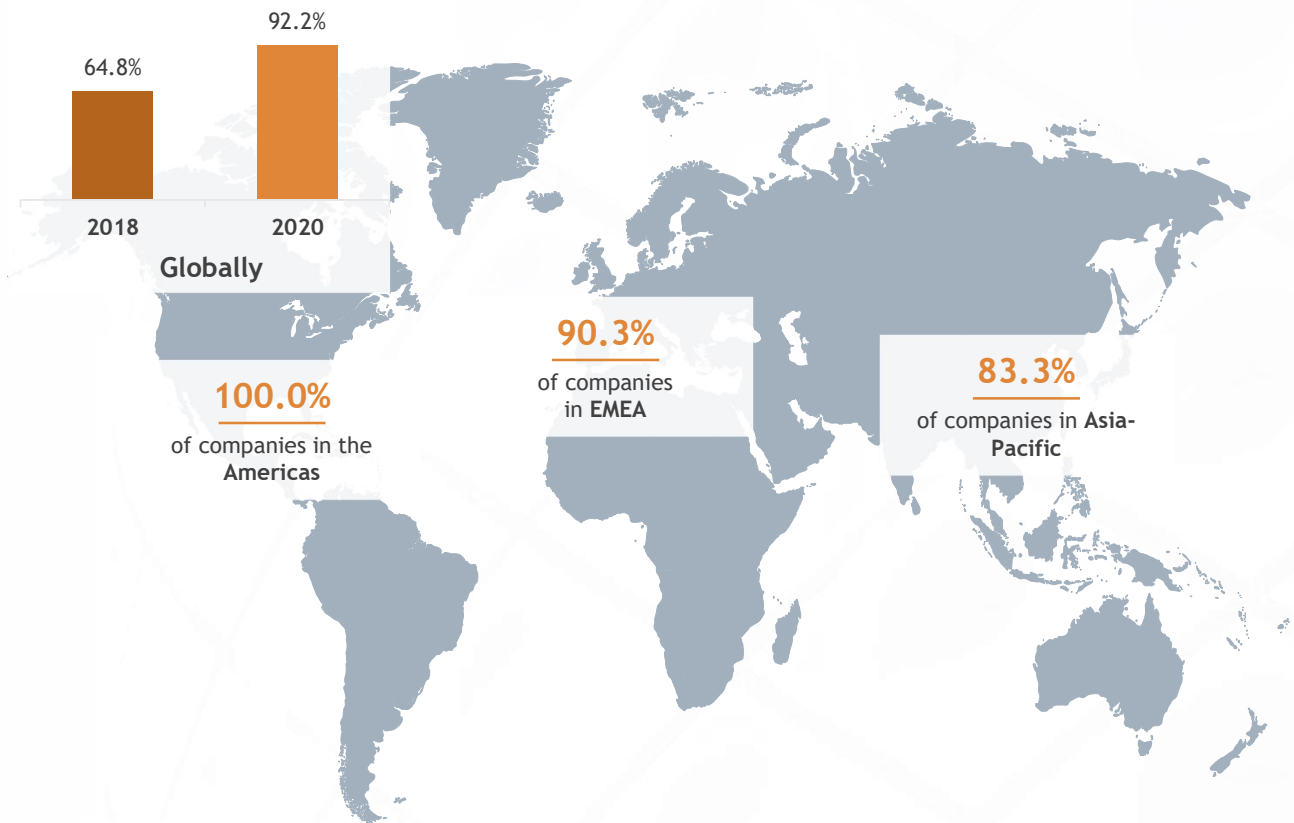
In 2020, 100% of telecom companies in the Americas marked unfavourable changes to regulation as a risk (2018: 88%), followed by Europe with 90% (2018: 63%) and Asia-Pacific with 83% (2018: 17%).

Our analysis shows that data protection is the most critical regulation change topic for analysed companies.

GDPR¹ is an often-mentioned example. It has changed business activities for all telecoms with activities in the EU market. Other countries and regions are passing data protection laws, including several US states.

As telecom companies work with massive amounts of consumer data, they need to consider special procedures to stay compliant with privacy legislation. Failure to do so can damage a company's reputation, customer trust, and lead to fines.

Share of companies that identify unfavourable changes to regulation as a risk



Rate changes one of 2020's biggest reported risks



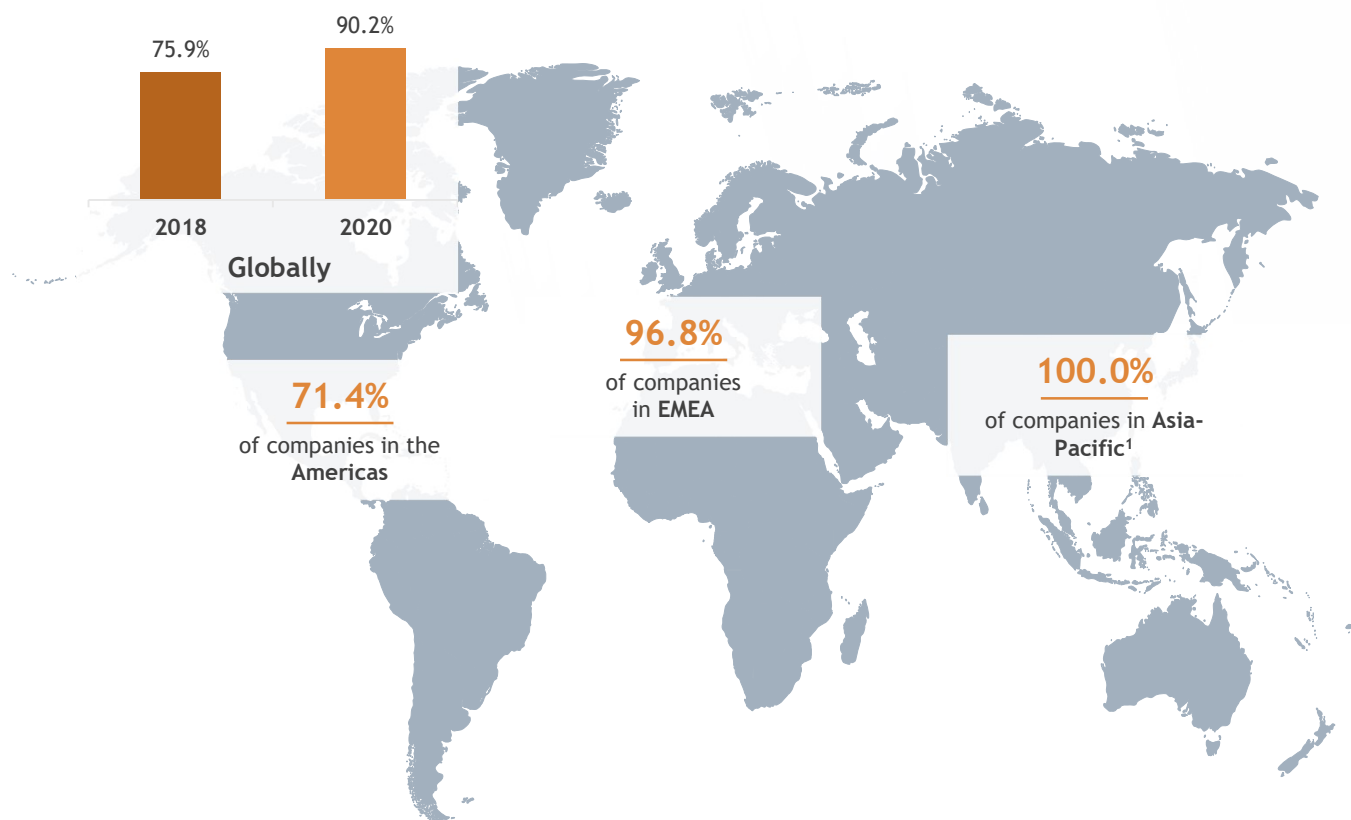
3. Exchange rate / foreign currency changes

Most telecommunications companies face exchange rate change risks due to investments made in foreign currencies, internationalisation of business activity and customers, and market volatility. In 2020, volatility was increased by COVID-19's impact.

The impact of exchange rate fluctuations in 2020 is particularly significant in the Asia-Pacific market where 100% of analysed companies marked them as a risk (2018: 83%), followed by EMEA and the Americas with 97% (2018: 78%) and 71% (2018: 69%), respectively.

Multinational mobile network operators immediately feel exchange rate fluctuations as their revenues are generated in local currencies. Additionally, telecom companies can expect significant currency exchange effects on the price of network equipment. As the telecommunication industry is a capital-intensive industry and has a competitive environment, it attracts many international investors, which means that currency fluctuations could harm investments.

Share of companies that identify exchange rate fluctuations as a risk



Intensified competition facing most telecom companies



4. Increased competition

Considering technological transformation and connected ease-of-access to new markets, more parts of the telecommunications space become attractive targets for industry incumbents and new market entrants. Active market players are facing increased competition, especially from technology players entering the telecommunications industry.

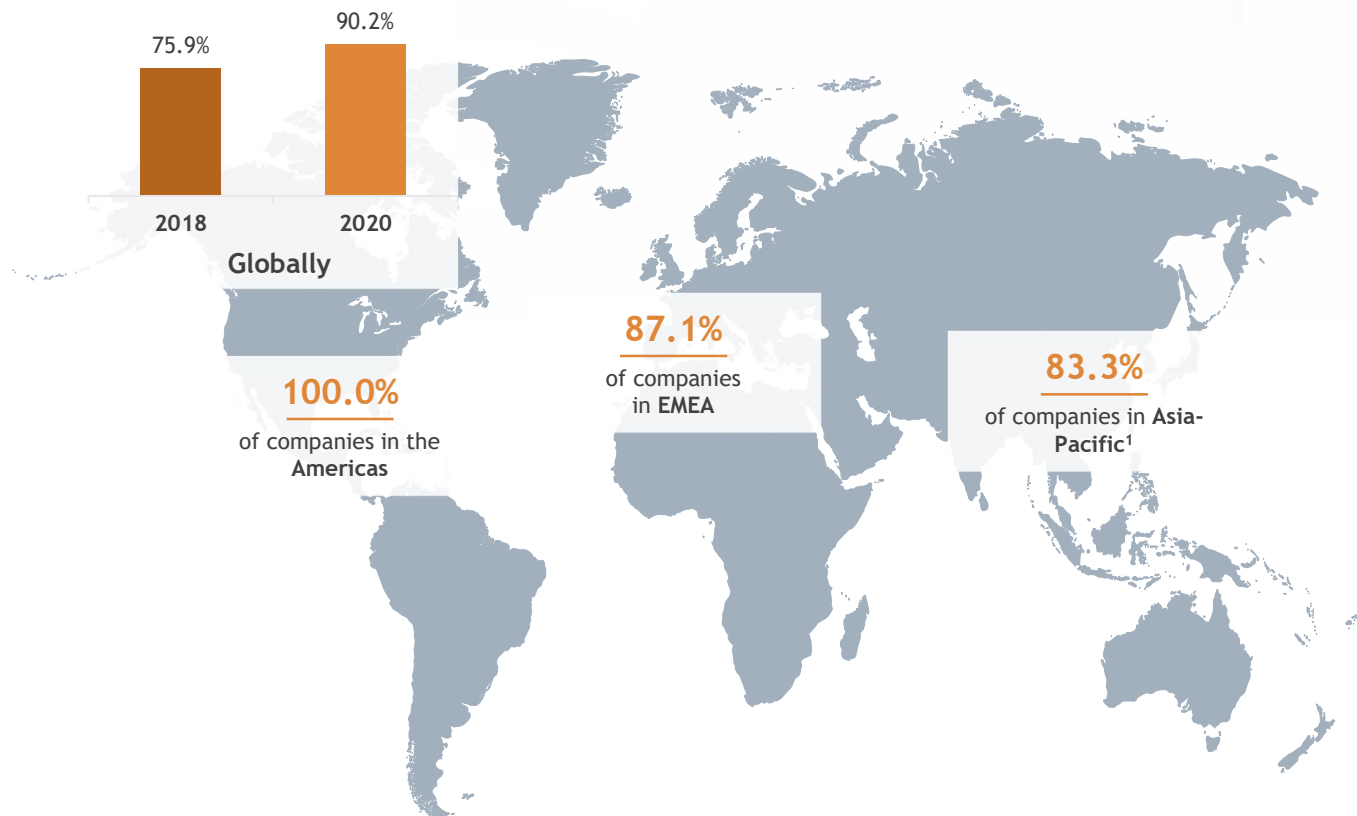
As a result, 90.2% of the telecommunications companies analysed identified increased competition as a risk. Competition is particularly felt in the Americas, where 100% of companies surveyed (2018: 84%) identify it as a risk. In EMEA

and Asia-Pacific, the percentages were 87% (2018: 66%) and 83% (2018: 30%), respectively.

In some areas, the telecommunications industry is saturated, and it is increasingly difficult for telecom companies to expand market shares. Meanwhile, competitive pressure from outside telecom operators, such as over-the-top (OTT) services, is also on the rise.

Telecommunications companies may need to adapt their product portfolio by offering cross-functional packages of services and lower prices than competitors to keep pace with new competitors.

Share of companies that identify higher competition as a risk



Credit loss provisions priority for eliminating credit risk impacts



5. Credit risk

Technological development within the telecommunications industry increases competition. Telecommunications companies are trying to secure customer growth by offering attractive deals and products. The financial pressure of COVID-19 on individuals and businesses may lead to increased default rates, thereby increasing credit risks.

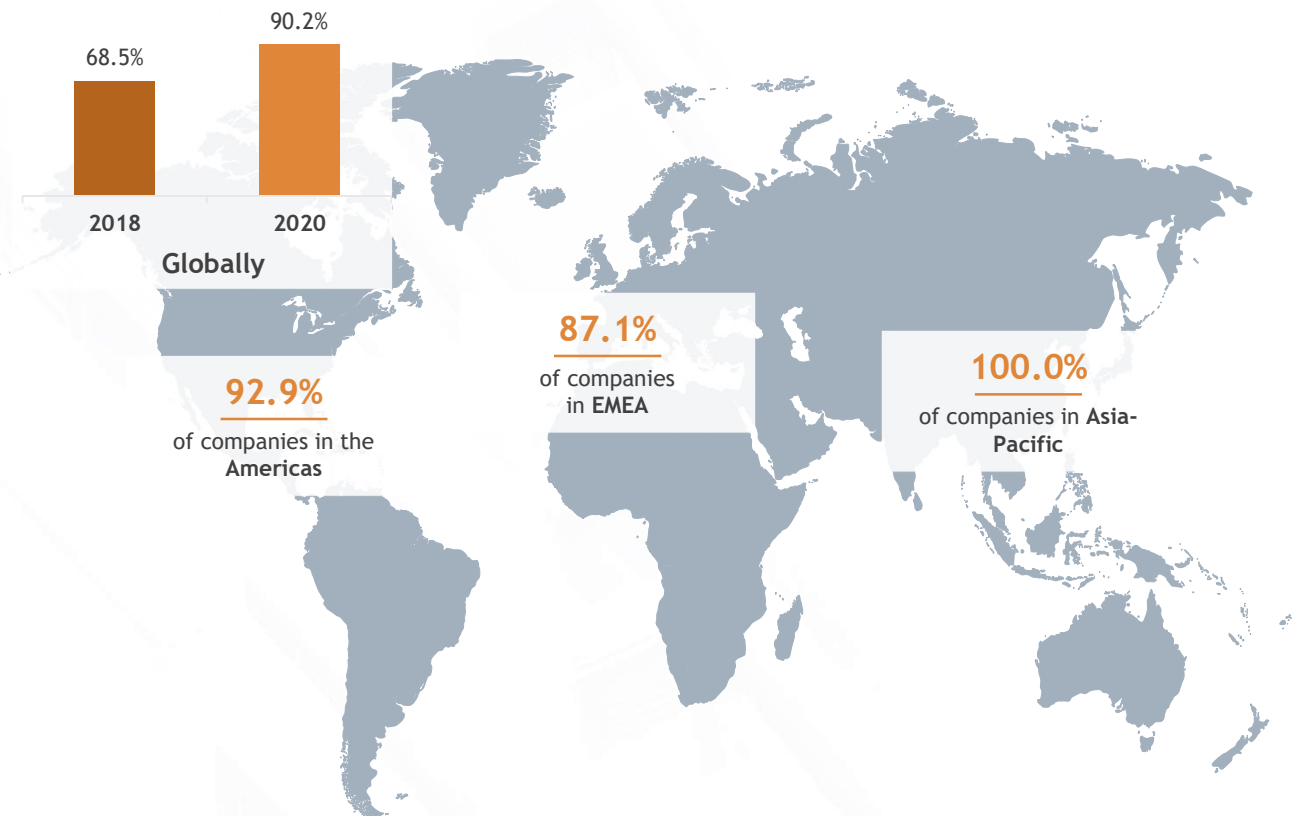
Asia-Pacific telecoms seem particularly vulnerable. All analysed companies in the region mention it as a risk (2018: 83%). Almost 93% of analysed businesses in the Americas (2018: 81%)

identified credit risk as one of the risks that require risk management measures, while the number in the EMEA market was 87% (2018: 59%).

Identifying, preventing, and managing risks at the point of sale and throughout the customer's lifecycle became even more important in 2020.

A well-designed and innovative receivables management process and operational parameters can help reduce credit risks and improve timely payments.

Share of companies that identify credit default as a risk



Financial risks are the top risks in all regions except for the Americas

TOP-5 risks of 2020

EMEA

Risk	Change in ranking compared to 2018	Change in percentage of companies that identify this risk, p.p. ¹
Exchange rate/foreign currency changes	>	+18.7
Interest rate changes	>	+27.9
Unfavourable changes to regulation	>	+27.8
Credit risk	>	+27.7
Increased competition	∨	+21.5

Overall, the Top 5 risks in EMEA reflected the global ranking, although the order was slightly different. In 2020, exchange rate change risk and interest rate change risk were chosen by most of the companies in the region. The same was the case in 2018. In general, the ranking of risks included in Top-5 remained the same between 2018-2020, except for the risk of intensified competition, which was identified by a smaller number of companies and, thus, was ranked lower.

TOP-5 risks of 2020

Americas

Risk	Change in ranking compared to 2018	Change in percentage of companies that identify this risk, p.p.
Unfavourable changes to regulation	∧	+26.3
Increased competition	>	+15.8
Cyber-security threats	∧	+26.3
Technology substitution	∧	+36.8
Fast arrival of new technologies	∧	+21.1

Four out of the Top 5 risks identified in 2020 were identical to those from 2018, although ordered differently. Technology substitution is a new inclusion. The percentage of companies that considered it as a risk rose by 36.8 p.p. in 2020 compared to 2018. All risks in the Top 5 apart from increased competition saw 20+ p.p. increased in the number of companies reporting it as a risk.

TOP-5 risks of 2020

Asia-Pacific

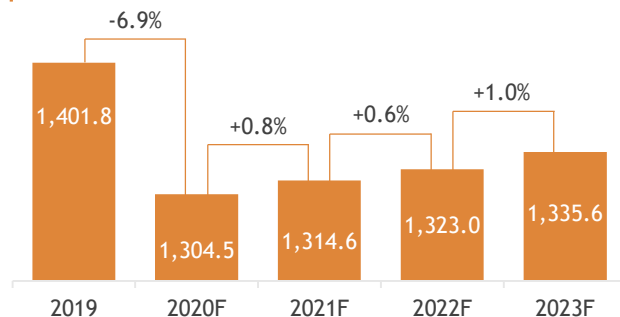
Risk	Change in ranking compared to 2018	Change in percentage of companies that identify this risk, p.p.
Exchange rate/foreign currency changes	>	+60.0
Interest rate changes	∧	+70.0
Liquidity/cash flow shortage	>	+60.0
Credit risk	>	+60.0
Unfavourable changes to regulation	∧	+73.3

The regional ranking of risks in Asia-Pacific generally reflects the global tendencies and included almost the same risks except for liquidity / cash flow shortage risk. Three out of Top 5 risks in 2020 kept the same position as in 2018. However, the percentage of companies that chose these risks rose significantly. The position of such risks as interest rate changes and regulatory changes in the ranking changed between 2018 and 2020.

* There was a change in sample size in Asia-Pacific from 2018

COVID-19 raises demand for telecom services and creates new threats

Global telecom services spending¹ forecast, Bn Euro²



COVID-19 led to rising digital infrastructure needs, including for work-from-home and remote work, such as videoconferencing, data sharing, and cloud systems. The pandemic put pressure on telecom operators' systems in terms of maintaining smooth functioning and connectivity under increased demand.

Despite the increased importance of the telecom industry, clients' spending on services declined, mainly due to economic uncertainties and pressures. A lot of businesses are facing either temporary or permanent shutdowns. In 2020, global spending on telecom services fell by 6.9%. It is expected to see a recovery in 2021 and beyond, reaching 1,335.6 Bn Euro by 2023.

Risks arising from COVID-19 for the telecom industry



Connectivity issues

The increased need for dispersed internet and mobile connectivity throughout the day raises the traffic volumes, which can in turn decrease transfer speeds and create challenges for operators.



Limited productivity

Telecommunication companies conduct work at various sites. Due to the pandemic, options for on-site work that cannot be done remotely have been limited, which disrupts regular operations and reduces efficiency.



Supply chain disruptions

Due to the increase in demand for telecom equipment, the need for efficient logistical and supply chains increases. However, the introduction of lockdown and trade restrictions result in continuous delays.



Changed customer profiles

Companies specialised in roaming services may need to shift their focus due to the pandemic's influence on tourism, while business-focused telecoms risk losing clients due to companies' inability to stay afloat.

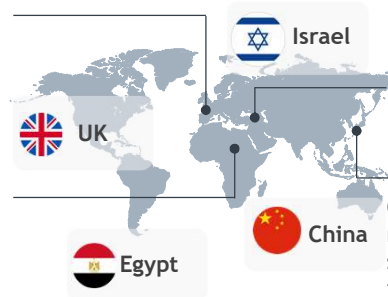
Selected governmental initiatives in collaboration with telecom businesses

Response to fake news related to COVID-19

The UK Parliament implemented an obligatory requirement for telecom operators and media sources to block fake news sites related to the COVID-19 pandemic, including in relation to 5G.

Free-of-charge offering of services

Egyptian authorities in collaboration with telecom operators, granted 3,000 minutes and 10 gigabytes per month for free to all personnel engaged in the work of COVID-19 hospitals.



Boosting broadband capacity

At keeping people and businesses connected during COVID-19, the Ministry of Communications in Israel worked with the Israeli Internet Association to introduce expanded connectivity between local providers and submarine cable operators, retailers and end-users.

New Fixed Wireless Access networks

Chinese governmental bodies deployed 5G network at the Wuhan Hospital within 24-hour, secured high-speed internet coverage for those involved in telemedicine and health records.

Challenges and opportunities



Need for 5G

Telecoms have been investing heavily in building out 5G networks. Changes in work styles (remote work and work from home) can increase the business cases and market opportunities for the new networks.

Quality targets

Telecoms looking to increase service portfolios or market shares are many places in strong position to acquire distressed quality assets.



Divestiture impacts

Negative impacts on secondary business units, including media and technology investments, need to be overcome. Telecoms may look to divest certain assets to offset these impacts.

Challenge Turning physical to digital

In a pandemic, closed shops and inability to carry out on-premise work has taken its toll on telecom companies' efficiency and bottom line. Finding ways digitising services and workflows remains pivotal.

Second wave closures

Continued economic uncertainties and market dynamics increases the likelihood of a 'second wave' of contract defaults for both individual and business customers.

Competition from above



Perhaps Elon Musk's least-known endeavour is already busy at work above us. The StarLink project aims to be a direct competitor to telecoms, delivering internet via a network of satellites and has already been successfully launched. If the networks prove competitive - or perhaps dominate the need for increased connectivity - it could undermine telecoms' earnings projections for the launch of expensive 5G networks.

It could also help to achieve broadband connection in remote areas where traditional fibre connections/full scale 5G networks economically are not meaningful. So there's also the chance of partnerships with traditional telecoms to help them achieve their targets/regulatory requirements in terms of broadband connections.

Big telecom players proactive in COVID-19 response

Mobile network operators' (MNO) in the time of the crisis



Deutsche Telekom (Germany) was asked by the government to help develop a contact tracing application¹. Most of the company's employees have been transferred to remote work. New workplace safety measures were introduced for those employees who could not work from home (face masks, disposable gloves, shoe covers). The company began creating fabric masks from old, unused fabrics for its employees. In addition, customers could sign their orders online.



AT&T (USA) actively supported digital learning during the lockdown. Thus, the company created the Distance Learning and Family Connections Fund to acquire the tools needed to educate students and teachers online.

Additionally, AT&T announced three months of free wireless service for nurses and physicians on the FirstNet network², through which they can video chat with their patients in the USA.



2/3 of **Telecom Italia** (Italy) staff was working from home during the lockdown.

According to its reopening plans, around 23,200 employees, including customer support, will continue to work from home. For those returning to the office, the outdoor desks are reorganised in a chessboard-like arrangement, allowing social distancing.



T-Mobile (USA), as a part of German Deutsche Telekom, established its customer support department working 24 hours per day and enabled its customers to receive their orders through online registration via their website.

The company unveiled T-Mobile Connect, a lower-price smartphone plan, and added cheaper options for Metro by T-Mobile. T-Mobile provided 'Paid Time Not Worked' for those employees in high-risk categories who are sick or those who needed intermediate support for childcare arrangements during school closures.



In Uganda, **Bharti Airtel** (India) introduced Airtel Money, an e-banking service, in order to ensure flawless payment of bills without the need for physical presence.

In Kenya, the company made the transactions free-of-charge across all brands enabling all Kenyan citizens to exchange money via the internet for free.

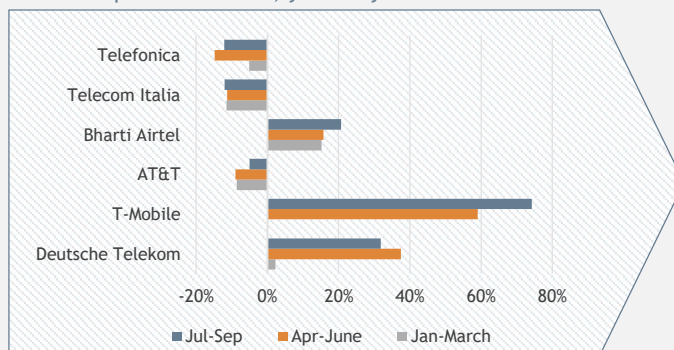


Telefonica (Spain) promoted remote work for all functions of the company. The company signed an agreement with UNI Global Union³, UGT⁴ and CCOO⁵ which includes the plan to return to centres after the COVID-19 crisis.

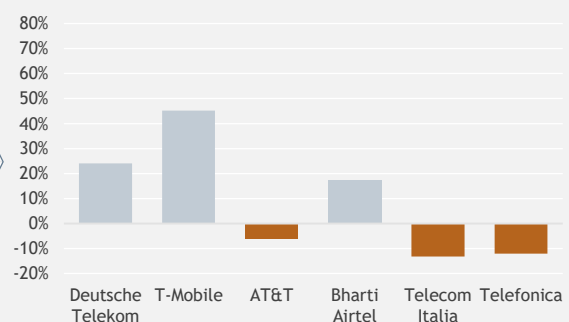
Telefonica collaborated with health institutions, offering its services and donating 25 Mn Euro for purchasing respirators and medical equipment.

Impact of COVID-19 on the selected MNOs' revenue

The growth of revenue for three quarters of 2020, year-to-year



The growth of revenue for January-September 2020, cumulative



Source: Bloomberg; Telecom from The Economic Times; Companies' media; Press releases; Quarterly reports




Notes: (1) Technology that allows health services to find out who an infected person has interacted with in order to track the pathways of infection with COVID-19; (2) AT&T's broadband network dedicated to public safety; (3) Global union federation that represents workers from trade unions in over 150 countries; (4) Unión General de Trabajadores – General Union of Workers in Spain; (5) Confederacion Sindical de Comisiones Obreras – Trade Union Confederation of Workers' Commissions

Future risks in telecom revolve around adoption of new technologies

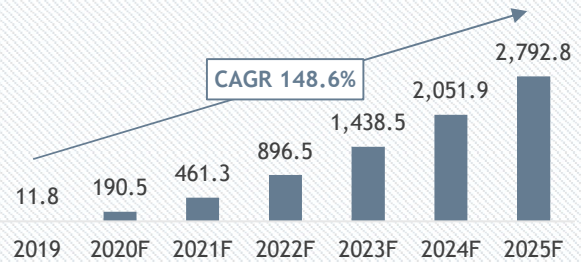
Future telecom trends

The telecommunications industry is strongly impacted by technological advances, which are the foundation of many new trends.

Among the main trends affecting telecoms now and in the nearest future are:

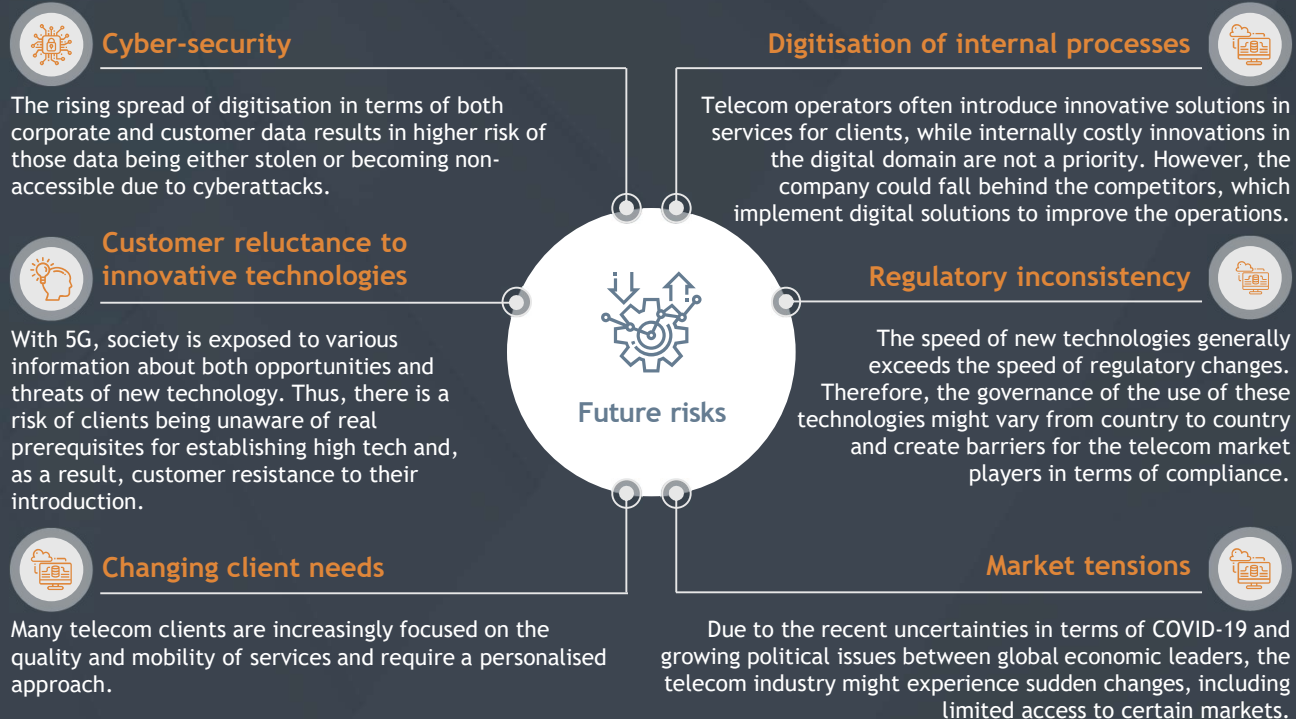
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5G: more resilient and stable connection with higher speed and lower latency.
- 
Edge computing: tools and storage located close to the end-users, which prevents disruptions in application operations.
- 
UCaaS (Unified Communications as Service): system of communication tools such as file sharing and instant messaging ensured by the cloud vendor.

Forecast of 5G mobile subscriptions on a global scale, million units



5G is predicted to affect the whole industry in terms of a higher level of integration with users and increase new opportunities. Access to and the use of SaaS as well as Internet of Things will rely on 5G, which in turn might enable the complete transformation of many sectors (fx healthcare, education, and entertainment).

Although emerging technologies upgrade both the quality of telecom services and user satisfaction levels, they can create challenges. Due to the ever-rising uncertainties within the global economy, telecoms can expect to face new and changing risks, such as those outlined below:



Risk mitigation is a vital aspect of telecom companies' operations

Types of risks

Risk mitigation activities



Operational and supply chain risks

- ▶ Supply chain disruptions
 - ▶ Network interruptions
 - ▶ Supplier errors
 - ▶ Infrastructure
- ▶ Consider non-traditional open-source¹ suppliers and expand supplier options in order to improve supply chain flexibility and resilience
 - ▶ Reassess supply chains to uncover weak links, especially in commonly affected areas
 - ▶ Develop contingency plans to meet demand in case of service delivery disruptions or supplier failures
 - ▶ Use analytics to identify potential bugs and likely points of failure, and develop proactive communication plans to keep customers informed



Regulatory risks

- ▶ Unfavourable regulatory changes
 - ▶ New regulations
 - ▶ International requirements
 - ▶ Failure to meet obligations
- ▶ Continuously monitor regulations and policy and evaluate the impact of changes, especially the adjusted imperatives in customer-data privacy, security, and customer trust
 - ▶ Develop abilities to flexibly reengineer processes due to changing regulations
 - ▶ Consider prioritising new business models that incentivise public-private partnerships, rather than following traditional subsidy-based approaches
 - ▶ Align internal human resources-related policies and external regulations, especially in relation to employee management



Financial risks

- ▶ Liquidity risk
 - ▶ Credit risk
 - ▶ Interest rate pressures
 - ▶ Exchange rate/foreign currency changes
- ▶ Implement continuous monitoring of financial reporting requirements and connected audit impacts
 - ▶ Revisit key financial projection assumptions
 - ▶ Develop contingency plans to meet financial compliance obligations
 - ▶ Analyse and update liability projections for revised forecasts, such as effective interest rates, and re-evaluate projected allowances
 - ▶ Improve tech-enabled functionality to ensure timely access to required information and continuous communication with shareholders and investors



Competition risks

- ▶ Technology substitution
 - ▶ New players
 - ▶ Changes to industry structure
- ▶ Analyse industries and trends and evaluate market players in order to take advantage of new opportunities and changing market conditions
 - ▶ Monitor market value proposition and invest developing product and service portfolio through R&D, investments, collaborations or acquisitions
 - ▶ Review and update the company's product portfolio continuously and perform regular competitor analysis



Customer risks

- ▶ Changing customer demand
 - ▶ Customer dissatisfaction
- ▶ Survey customers systematically and collect feedback in order to understand their needs and expectations
 - ▶ Communicate with customers and constantly keep them informed about their rights and changes to existing services to increase their cybersecurity awareness
 - ▶ Ensure business model flexibility to be able to adapt to the fast-changing customer demands

Methodology

The analysis was based on the companies' financial reports. It included statistical and qualitative analysis of the risks mentioned therein. In 2020, the total number of companies considered for the statistical analysis was 59. However, only 51 were analysed due to the lack of available data for eight companies. The companies were divided by such three regions as EMEA with 31 companies, Americas with 14, and Asia-Pacific with 6.

The risks in each region were calculated by the percentage of companies that specified a given risk in their reports in comparison to the number of companies analysed in this region. Based on this evaluation, the Top-5 risks were identified for each geographical area. In some cases, several risks included in the Top-5 had the same ranking due to the equal percentage of companies which mentioned this risk. Thus, two risks may be ranked with the same rating.

FOR MORE INFORMATION:

Christian Goetz

Leader of the global
Telecommunications team

+49 699 594 1514

christian.goetz@bdo.de

Tom Mannion

Principal of the global
Telecommunications team

+1 404 979 7130

tmannion@bdo.com

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