



Sicherheit in Technik und Chemie

2023

# Digitalization in Conformity Assessment in Africa

A QI-FoKuS study

[www.bam.de](http://www.bam.de)

# A study conducted within the framework of the QI-FoKuS initiative



Basic statistical population for the survey	569 accredited conformity assessment bodies (CABs) surveyed thanks to online CAB registration platform <u>LabNet</u>
Data collection method	Online survey
Survey period	April 15, 2023 July 31, 2023
Sample	21 fully completed questionnaires (4% response rate)

**Digitalization in  
Conformity Assessment**  
Online Survey

QI-FoKuS  
Research on Conformity  
Assessment and Safety



Supported by



# The Study - An Overview

The digital transformation of the economy as well as increasingly networked and complex products and applications are bringing digitalization into the focus of conformity assessment bodies (CABs). Innovations, new technologies and processes rely on corresponding conformity assessment services. This poses new challenges for testing and calibration laboratories, inspection and certification bodies, and other CABs. At the same time, however, new digital technologies and applications also offer new opportunities. This study is the first to comprehensively explore "Digitalization in Conformity Assessment" building on data from an online survey of accredited CABs in Africa.

## Major topic areas covered:

### Digital Maturity Level

- Assessment of the digital maturity of the CABs in Africa based on a tailored digital maturity model

### Drivers, Benefits and Barriers

- What motivates CABs to transform digitally, what impact do they experience, and what hurdles must be overcome

### Technology Trends

- Assessment of the digital technologies and applications currently in use (now and in a 5-year perspective)

# Table of Contents

---

<b>Page</b>	<b>Chapter</b>
<u>5</u>	<u>The Sample</u>
<u>10</u>	<u>Digitalization in African CABs: A General Overview</u>
<u>14</u>	<u>Digital Maturity of CABs</u>
<u>21</u>	<u>Motives, Impacts, Hurdles of Digitalization</u>
<u>25</u>	<u>Technologies and Trends</u>
<u>30</u>	<u>Digitalization and the COVID-19 Pandemic</u>
<u>34</u>	<u>The Project and Contacts</u>
<u>36</u>	<u>Annexes</u>

---

---

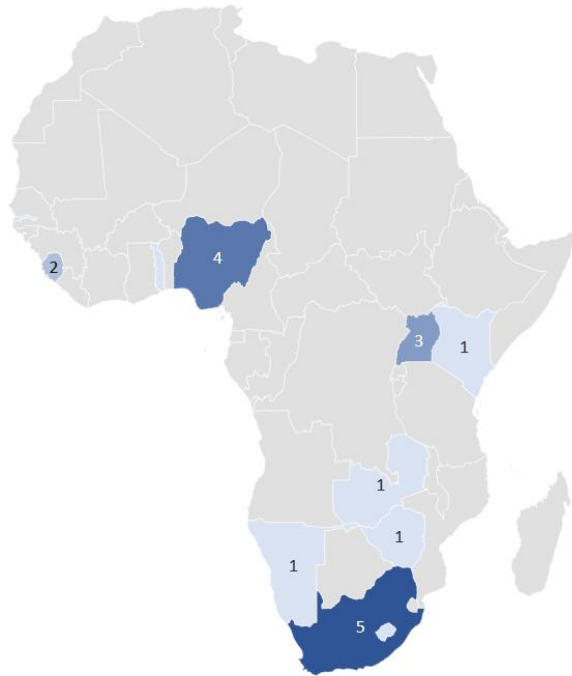
# The Sample

General information about the participating Conformity Assessment Bodies

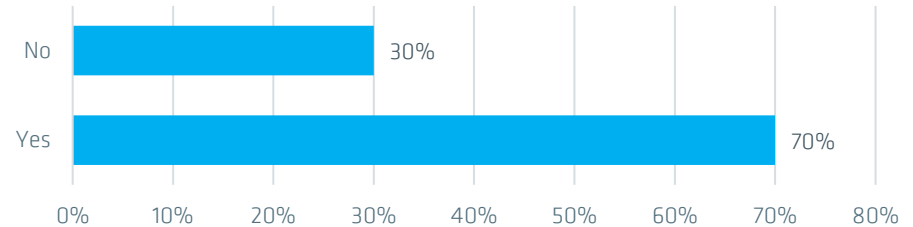
---

[www.bam.de](http://www.bam.de)

# Countries of origin of the participating CABs participating in the study



Is your CAB accredited?

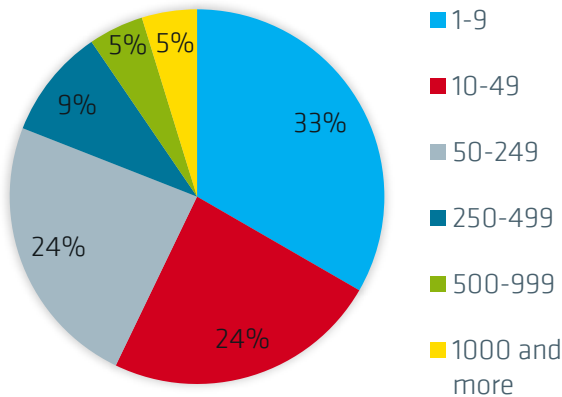


- Out of 21 CABs that participated in the survey, 5 are located in South Africa, 4 in Nigeria, 3 in Uganda and 2 in Sierra Leone. In the other participating countries (Kenya, Zimbabwe, Namibia, Zambia, Togo, Lesotho, and Gambia), only 1 CAB participated.
- 70% of the participating CABs are accredited.

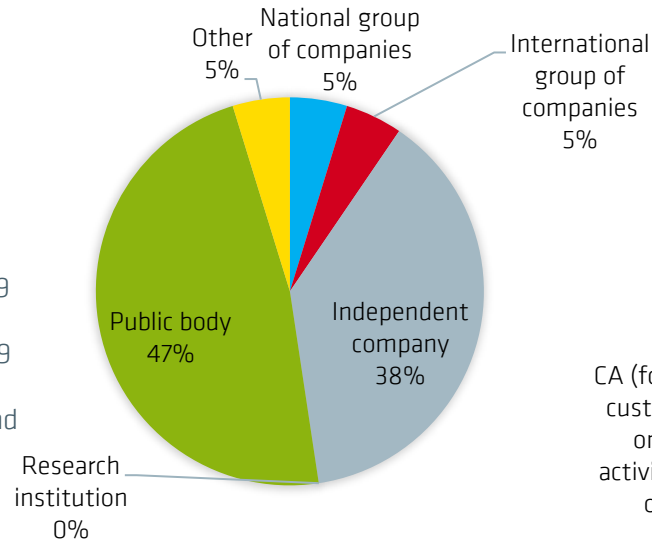
# 21 conformity assessment bodies (CABs) participated in the survey

- 57% of participating CABs are **small businesses** with less than 50 employees.
- 47% are **public bodies**, 38% are **independent companies**, 5% belong to a **national group**.
- for 48% CA is the main **focus of activity** and for 28% it is **one activity among others**.

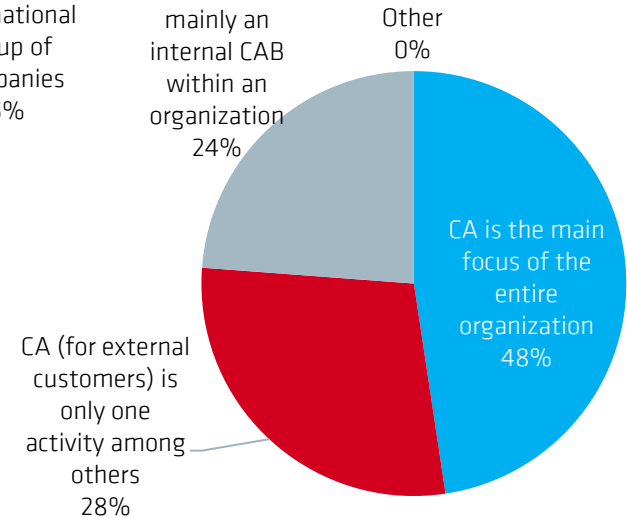
Number of employees (n=21)



Type of organization (n=21)

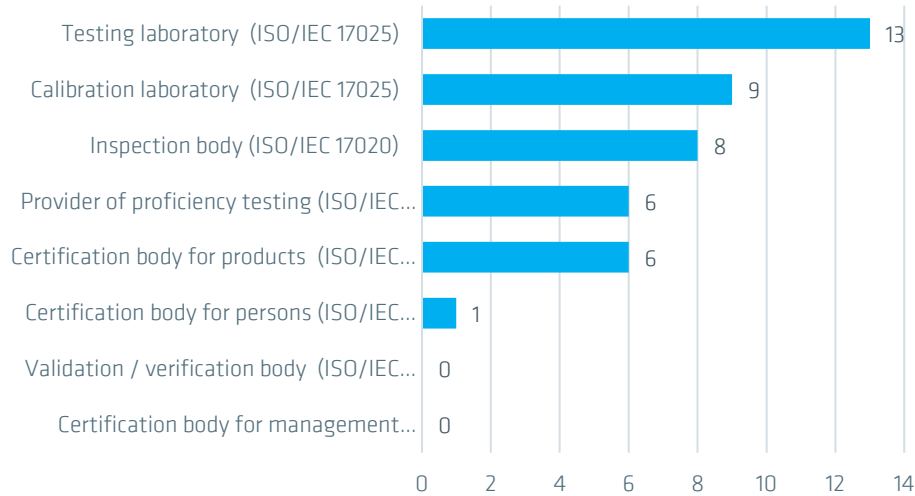


Role of CA for the organization (n=21)

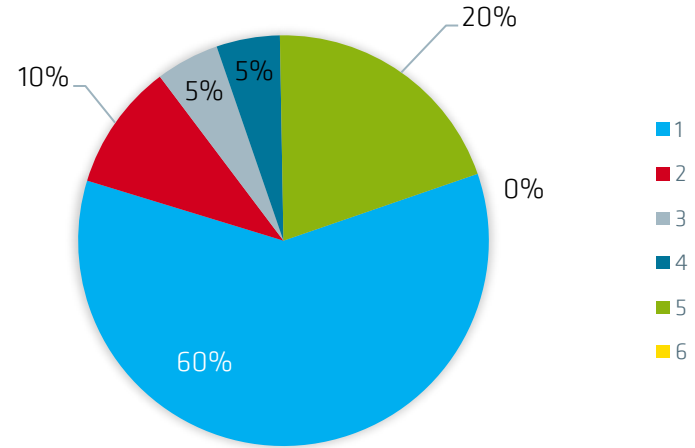


# The 21 participating CABs cover a broad range of activities

Field of activity



Number of fields of CA activities per CAB

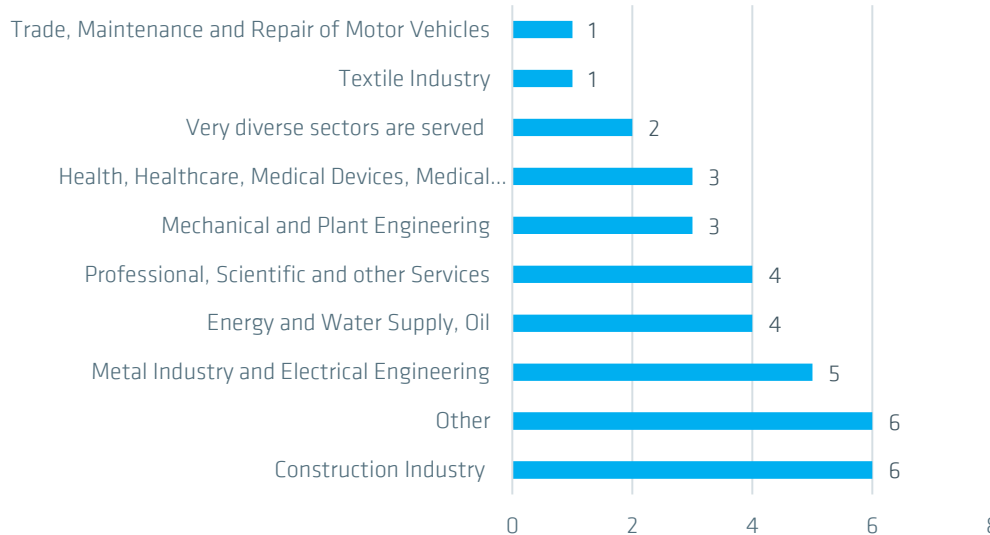


- Testing laboratories represent the **largest group of participants**, followed by calibration laboratories and inspection bodies.
- 60% of CABs are **specialized** in a single field of conformity assessment activity; 20% cover a broad range of activities (up to 5).

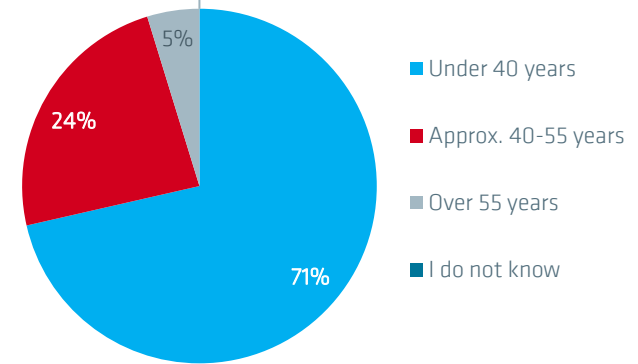


# The CABs serve a broad spectrum of sectors

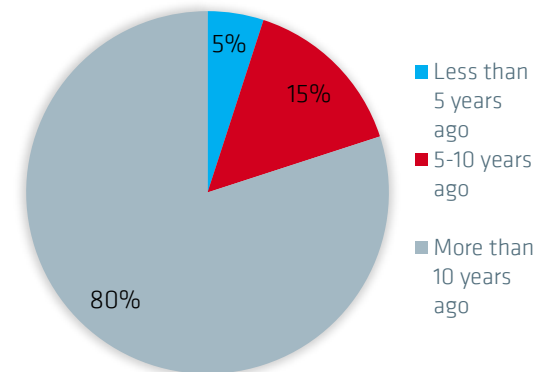
## Main sectors served by CABs



## Average age of employees (n=21)



## Establishment of the CAB (n=21)



- The **main industries** served by the CABs are from the construction industry, but also metal industry and electrical engineering are important.
- While the **average age of the employees** is under 40 years in 71% of the CABs, 24% have staff from 40-55 years on average.
- 80% of the CABs were **established** more than 10 years ago; only 5% are younger than 5 years.

---

# Digitalization in African CABs A General Overview

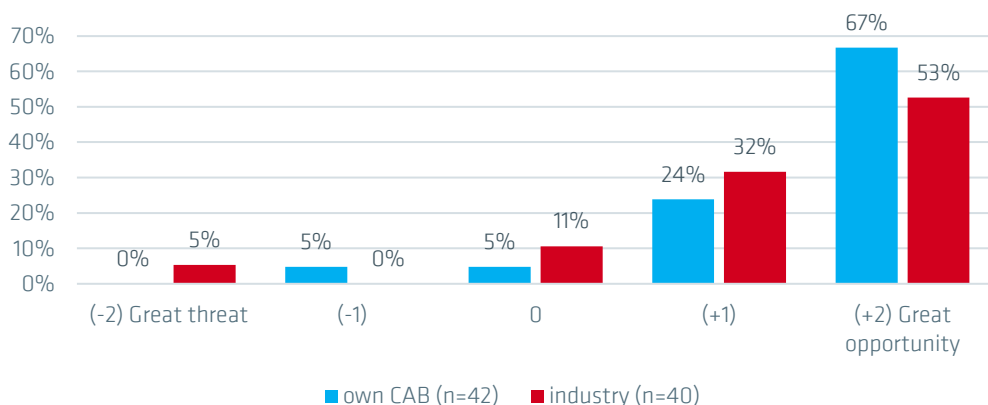
This section sheds light on how the participating CABs perceive digitalization for their organization (now and in perspective) and how they self-evaluate their current state of digital transformation.

---

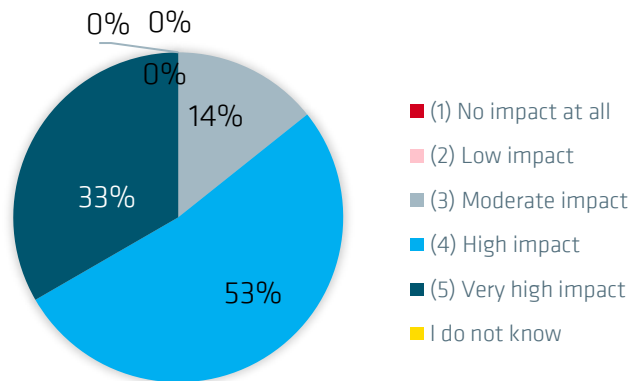
[www.bam.de](http://www.bam.de)

# Digitalization is perceived as an opportunity by most CABs, with high impact in the future

For the CAB itself and the whole industry, digitalization is viewed rather as...



Expected impact of digitalization in the next 5-10 years (n=21)



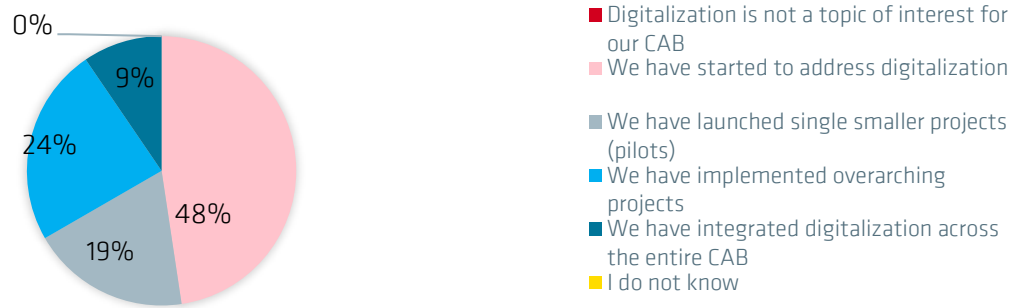
- In general, the CABs have a **positive perception** of digitalization: more than 91% of surveyed CABs recognize digitalization as an **opportunity or even a great opportunity** rather than a threat, for the own organization and even 85% for the whole CA industry.
- 86% of the participants expect a **high or even very high impact of digitalization on CA activities** in the next 5-10 years.

# Diverse status of digitalization across the CABs//

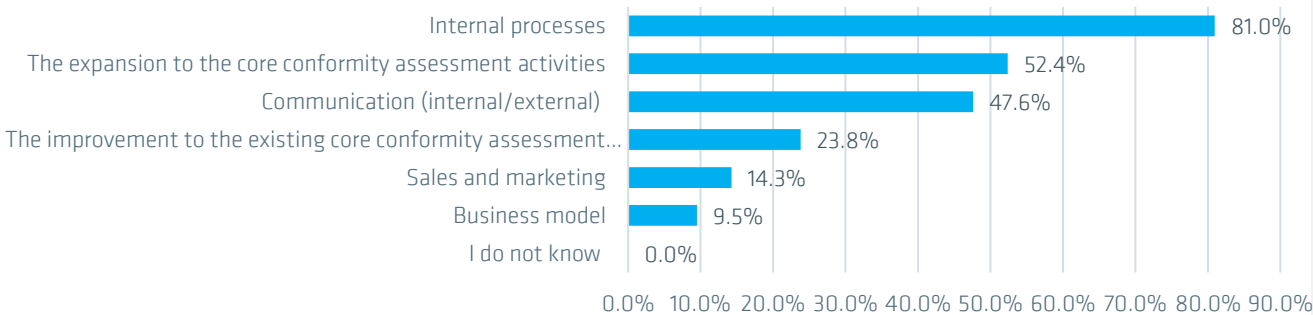
## Focus mainly on internal processes



Status and extent of digitalization in the CABs (n=21)



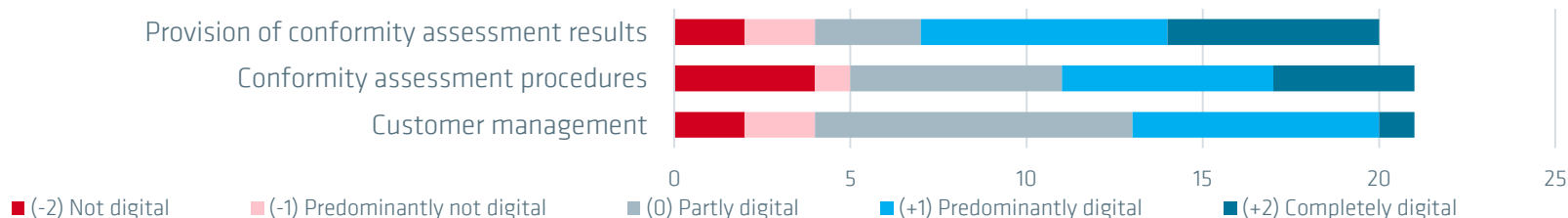
Areas targeted by digitalization (multiple answers possible, n=21)



- **The status of digitalization is quite diverse** across the CABs in African CABs: While 48% of the CABs have just started to address this topic, 19% have launched single smaller projects and 24% have already implemented overarching projects. 9% state to have integrated digitalization across the whole organization.
- Although most of the **digitalization activities concern internal processes**, digitalization is currently used by 52% of the CABs to expand the provision of CA services. However, it is used rarely to adopt new business models.

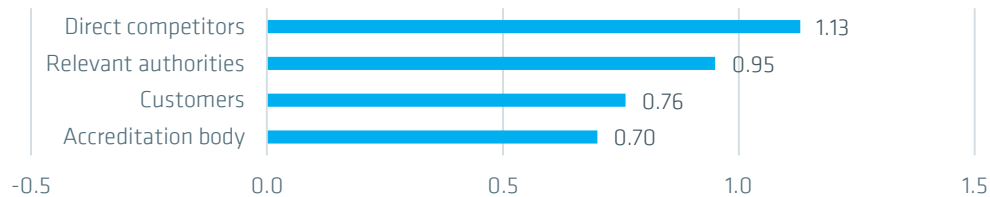
# Many areas are not yet or only partly digital; CABs BAM yet rate themselves more digital than their stakeholders

Self-evaluation of the CABs' status of digitalization in different areas (n=21)

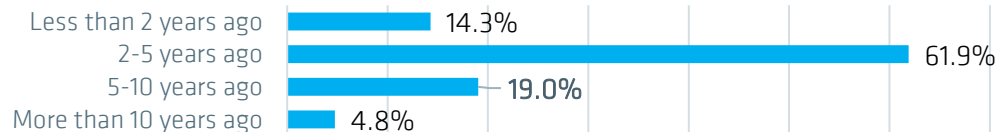


- About 78% of the CABs are at least partly or predominately digitalized in major areas such as CA procedures or customer management. However, only 1 CAB stated that the provision of CA results can be considered completely digital.
- When **comparing themselves to other organizations**, CABs perceive their digital status as at least as good or better, especially when compared to direct competitors, relevant authorities and customers.
- 76% of the CABs **have started to deal with digitalization** recently (during the last 5 years). Only 5% have done so at least 10 years ago.

Own status of digitalization compared to... (n=20)  
(on a scale of (-2 much worse) to (+2 much better))



CABs started to deal with digitalization... (n21)



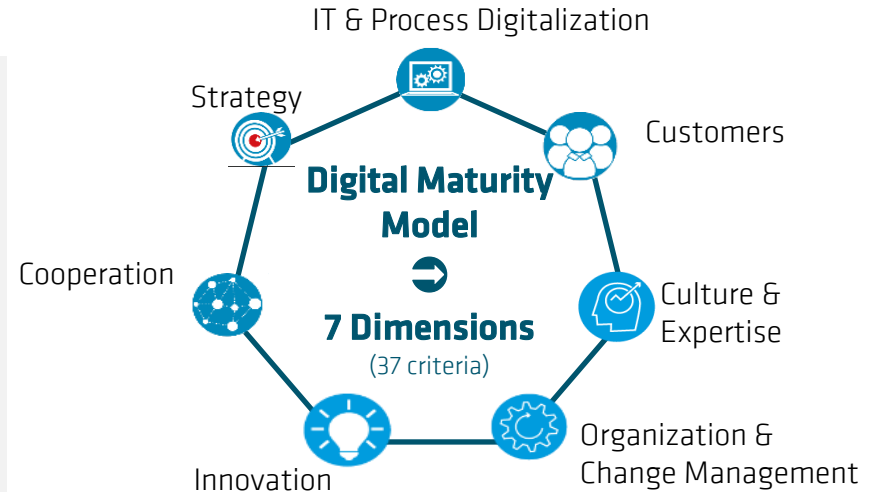
---

# Digital Maturity of CABs

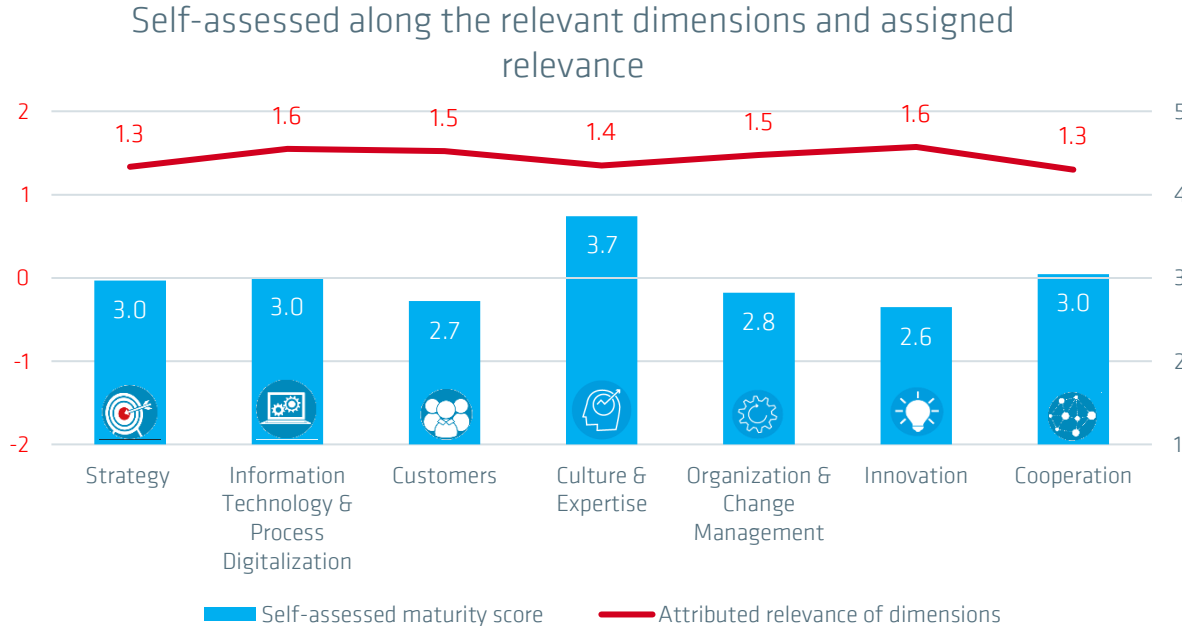
The "digital maturity" of an organization describes its status in the digital transformation. Digital maturity models use predefined dimensions and criteria to assess the ability of organizations to cope with the digital transformation. The following chapter presents the results for African CABs based on a model developed specifically for this study.

# The digital maturity model for the conformity assessment industry

- The digital maturity level reflects the status of the digital transformation of an organization and includes technical as well as organizational and strategic aspects.
- Becoming a digitally mature organization requires efforts, **capabilities** and **resources** across many areas.
- These are mapped in a maturity model using various **dimensions** and **criteria**:
  - Our specially developed model takes into account 7 dimensions that are essential in the digital transformation of CABs: from technological to strategic, organizational, to cultural aspects.
  - Each dimension is operationalized by 4 to 6 criteria that describe basic success factors in terms of capabilities, capacities and resources.
- By means of a self-assessment of the participating CABs along these criteria, an individual digital maturity level is calculated - from level 1 ("beginner") to level 5 ("expert").



# Different maturity of dimensions: customers advanced, organization not yet



- The results of the maturity model show a difference in the average status of the CABs in the various dimensions:
  - The CABs consider themselves to be **most advanced** in the areas of “Culture and Expertise”, followed by “Strategy”, “IT & Process Digitalization” and “Cooperation”.
  - CABs consider to be less digital matured in the areas of “Innovation” and “Customers”.
- Respondents are aware of the high relevance of the dimension “Organization & Change Management”.

➔ *Details on the composition and partial results in the individual dimensions can be found in the appendix.*

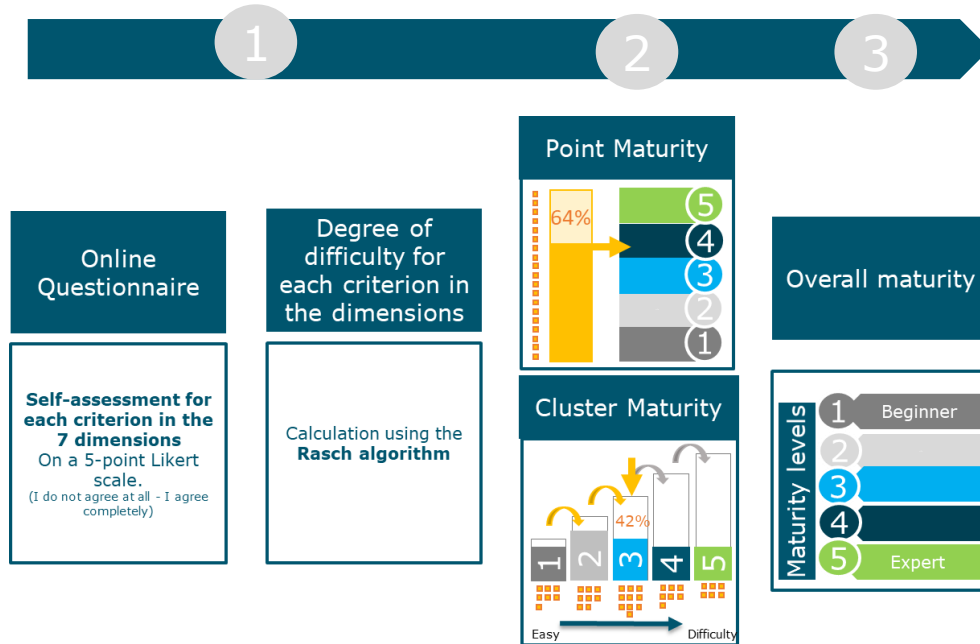
\* CABs were asked to self-evaluate along statements in 7 topic areas (dimensions) on a scale from 1 (I do not agree at all) to 5 (I fully agree). These statements and dimensions are displayed in detail in the following pages. Participants were then asked to rate the importance of each dimension with regard to a successful digital transformation on a scale from -2 (not important at all) to +2 (very important).



# Background information: Calculation of the digital maturity level

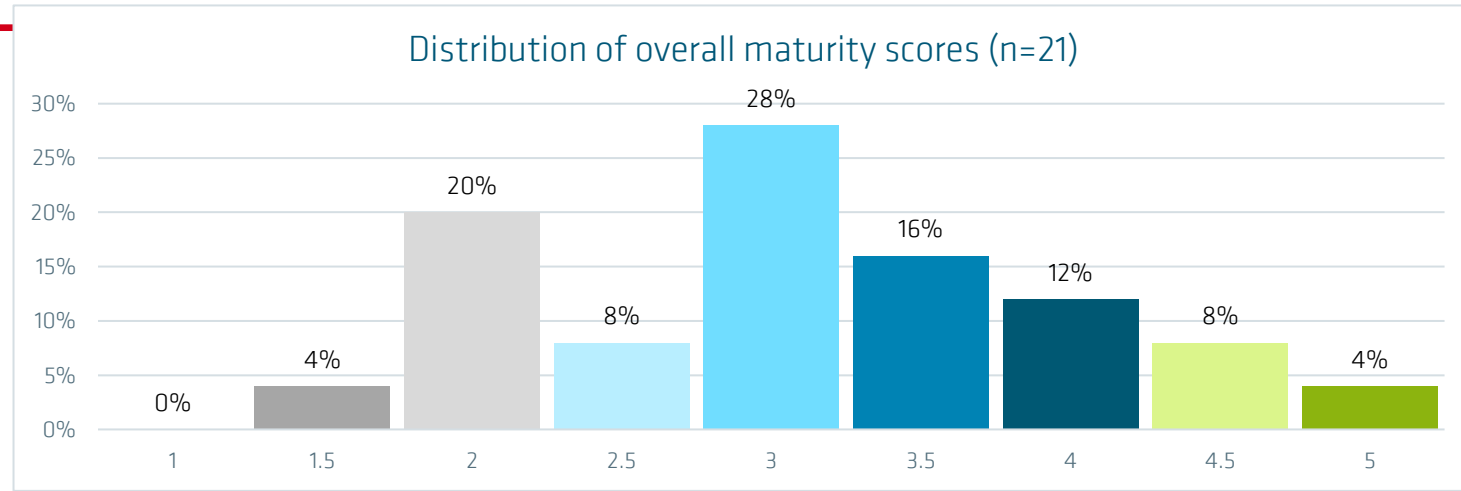
In the questionnaire, participants indicate the extent to which each of the criteria in the 7 dimensions applies to their CAB. In a **multi-stage process**, digital maturity is determined on the basis of these assessments:

1. For each criterion, the Rasch algorithm is first used to calculate how difficult it is to achieve a good result for it (**degree of difficulty**). If, on average, a large number of participants state that they can meet this criterion, it is classified as easy to achieve.
2. Based on this, 2 types of maturity levels are determined: **Cluster analysis** is used to divide the indicators into 5 sequential maturity clusters (1 = easiest indicators; 5 = most difficult). To reach higher maturity, the thresholds of the lower maturity levels have to be met first. In addition, the **point maturity** is calculated: Here, the achieved points count in comparison to the possible total points.
3. The **overall digital maturity score** is the average of the cluster and point maturity scores.

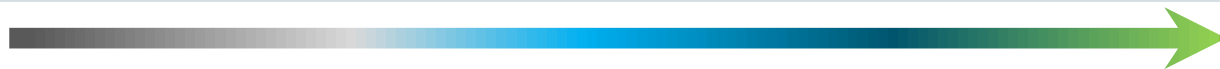


*The calculation is based on the method of the St. Gallen maturity model. See Back & Berghaus (2016). Digital Maturity & Transformation Study; Berghaus & Back (2016). Stages in Digital Business Transformation; and Friedel & Back (2012). Determination of enterprise 2.0 development levels with a maturity model.*

# Overall Digital Maturity Scores of the African CA industry



Beginner



Expert

Statistically, the **digital maturity levels** achieved by the 21 participating CABs in Africa follow a *normal distribution*:

- 32% of the CABs are still in the earlier stages of digital transformation, and 44% have reached medium level 3 (i.e., 3 and 3,5). 24% of the CABs have already reached a higher level of maturity.
- 4% of the CABs have achieved the expert maturity stage 5. None of the CABs is still on the very beginner level 1.

# The 5 Digital Maturity stages in African CABs

## Beginner

1



- ✓ Digitalization has a central role in strategy
- ✓ Evaluation of digital technologies with regard to innovation potential



- ✓ Employees' awareness of important rules of conduct for IT Security and check of their compliance



- ✓ Open to new technologies, change, and transformation

2



- ✓ Networked processes
- ✓ Use of digital technologies ensured



- ✓ Interactions with customers via digital channels
- ✓ Integrated, digitalized customer care



- ✓ Digital information is important
- ✓ Availability of right people and skills for successful digital transformation
- ✓ Risk of failure accepted



- ✓ Digitalization as a new source of value creation



- ✓ External experts
- ✓ Work across departments

## Intermediate

3



- ✓ Investment in digital technologies
- ✓ Most important technologies are known



- ✓ Analysis of customer needs
- ✓ Analysis of customer data



- ✓ Targeted training of our employees



- ✓ Digital innovations are driven forward systematically and purposefully



- ✓ Collaboration with stakeholders
- ✓ Collaboration supported

4



- ✓ Digital opportunities are exploited



- ✓ Defined and measurable goals of digitalization
- ✓ Defined roles, responsibilities & decision-making processes



- ✓ Clearly defined innovation process
- ✓ Competitive advantages generated
- ✓ Customers involved in development of digital innovations



- ✓ Partner network

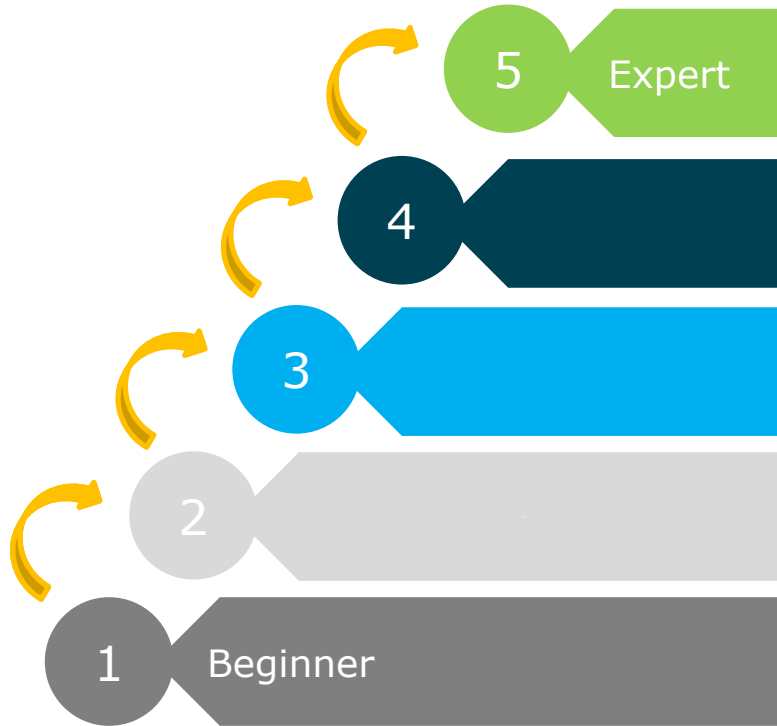


- ✓ Well documented and communicated digital strategy
- ✓ Clearly defined responsibilities for implementing goals
- ✓ Key indicators for measuring the implementation of the digital strategy
- ✓ Digital Roadmap



- ✓ Early warning system to identify relevant digital technologies and business models
- ✓ Defined roles, responsibilities & decision-making processes
- ✓ Rapid response to change

# The Digital Maturity of African CABs// Summary of the observed patterns



- At the **first maturity level**, digitalization as a central role in the overall strategy, and CABs are open to new technologies, change, and transformation.
- For **stage two**, capabilities, resources, and capacities are activated in almost all dimensions, with a focus on culture and expertise. Digitalization is recognized and pursued as a driver for new value creation and the risk of failure is accepted. Customer care is digitally integrated.
- Organizations that have reached the **third maturity level** provide Digital solutions based on customers' needs. Customer needs and analyses also increasingly come into focus. Digital innovations are brought forward systematically.
- In the **fourth maturity stage**, CABs have clearly defined innovation processes and actively involve customers in the development of new digital innovations. Through digitalization, competitive advantages are generated.
- The final **fifth stage** focuses on the dimension strategy, with CABs having a well-documented digital strategy and a Digital Roadmap for achieving the goals. CABs are able to quickly react to changes and have early warning processes to identify new digital technologies.

---

# Motives, Impacts and Hurdles of Digitalization

What drives digitalization in the African CABs? What effects can be achieved for the organizations? Are expectations being met? And what are the biggest hurdles to overcome in the digital transformation?

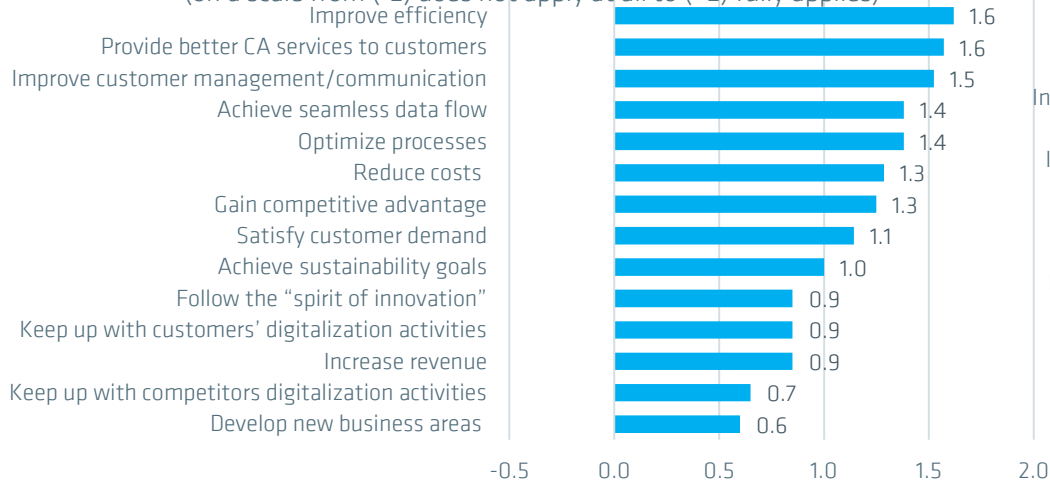
---

[www.bam.de](http://www.bam.de)

# Focus on process optimization and efficiency enhancement

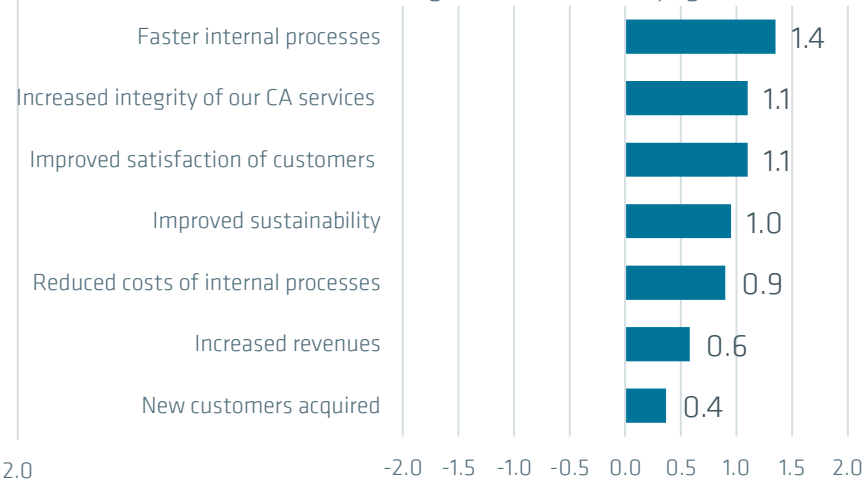
## Goals behind the digitalization efforts (n=21)

(on a scale from (-2) does not apply at all to (+2) fully applies)



## Benefits realized from digitalization (n=20)

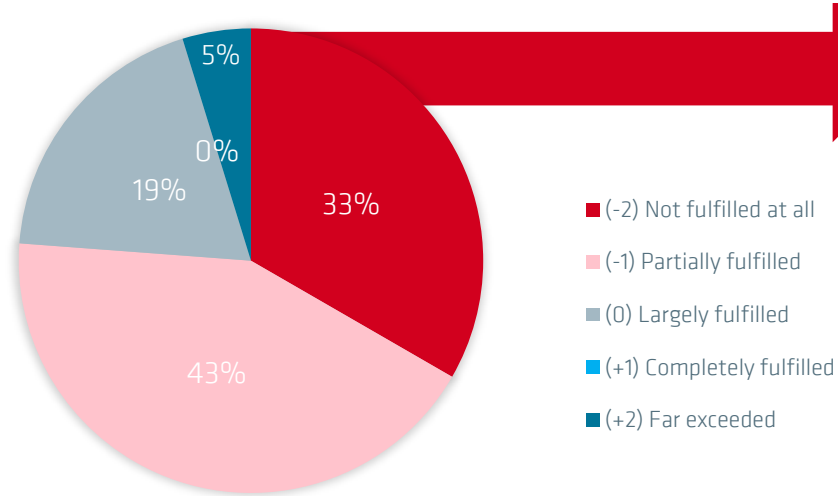
(on a scale from (-2) not agree at all to (+2) fully agree)



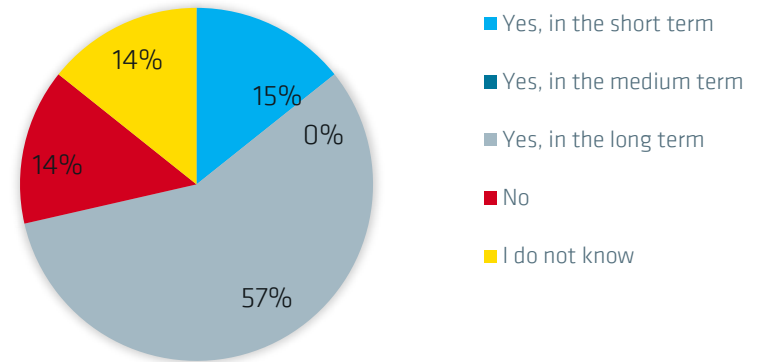
- Improving efficiency and providing better CA services to customers are the **main goals** behind the digitalization efforts of CABs in Africa. In fact, faster internal processes and increased integrity of CA services are considered as greatest realized benefits.
- Market objectives such as keeping up with competitors' digitalization activities or developing new business areas are not big drivers - and the effects achieved on increased revenues and new customer acquisition are correspondingly low. However, many respondents see the CABs' sustainability as well as the satisfaction of existing customers improved.

# CABs' expectations in connection with digitalization are mostly partially met

Fulfillment of expectations linked to digital transformation (n=21)



Will the expectations be met? (n=7)

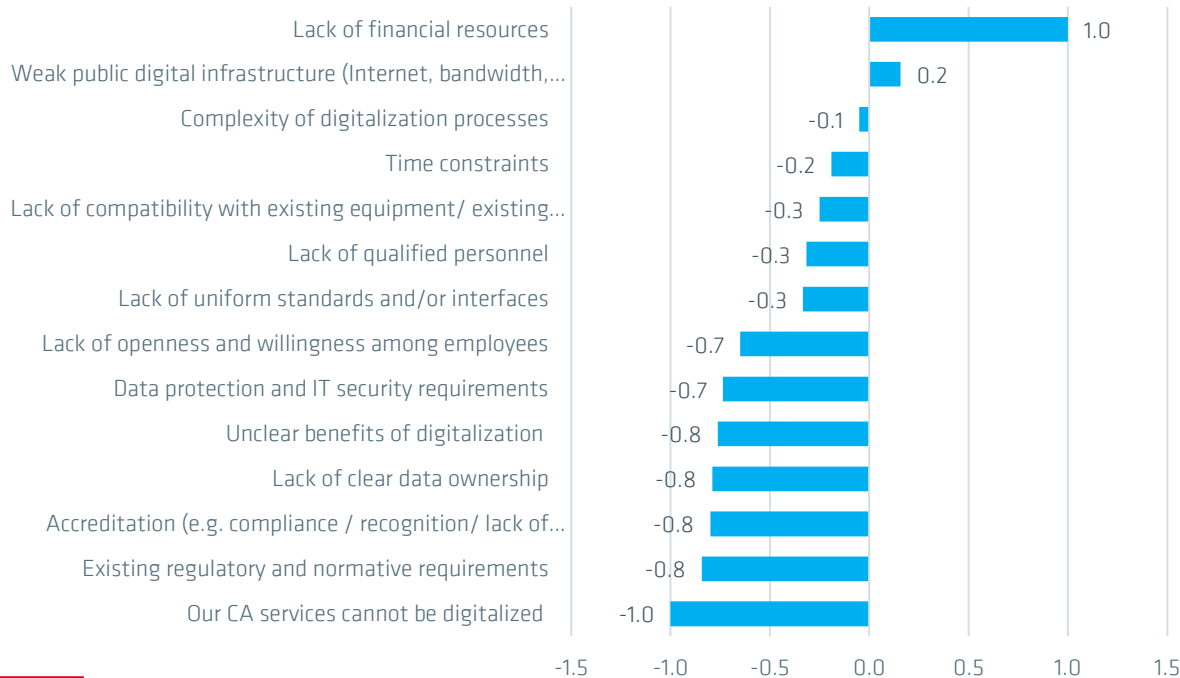


- 62% of the CABs consider their expectations of the introduction of digital technologies have been largely or partially fulfilled. Another 5% find them as far exceeded.
- For 33% of the CABs the expectations are not fulfilled at all. 72% is confident to still meet the expectations in the future.

# Complexity of the topic and lack of time are the main hurdles to digital transformation

## Hurdles to digital transformation (n=21)

(Scale from (-2) not at all to (+2) very much)



- The lack of financial resources is the biggest hurdle for CABs, followed by weak public digital infrastructure.
- Not considered as obstacles is the fact that the CA services could not be digitalized and existing regulatory and normative requirements.



---

# Technologies and Trends

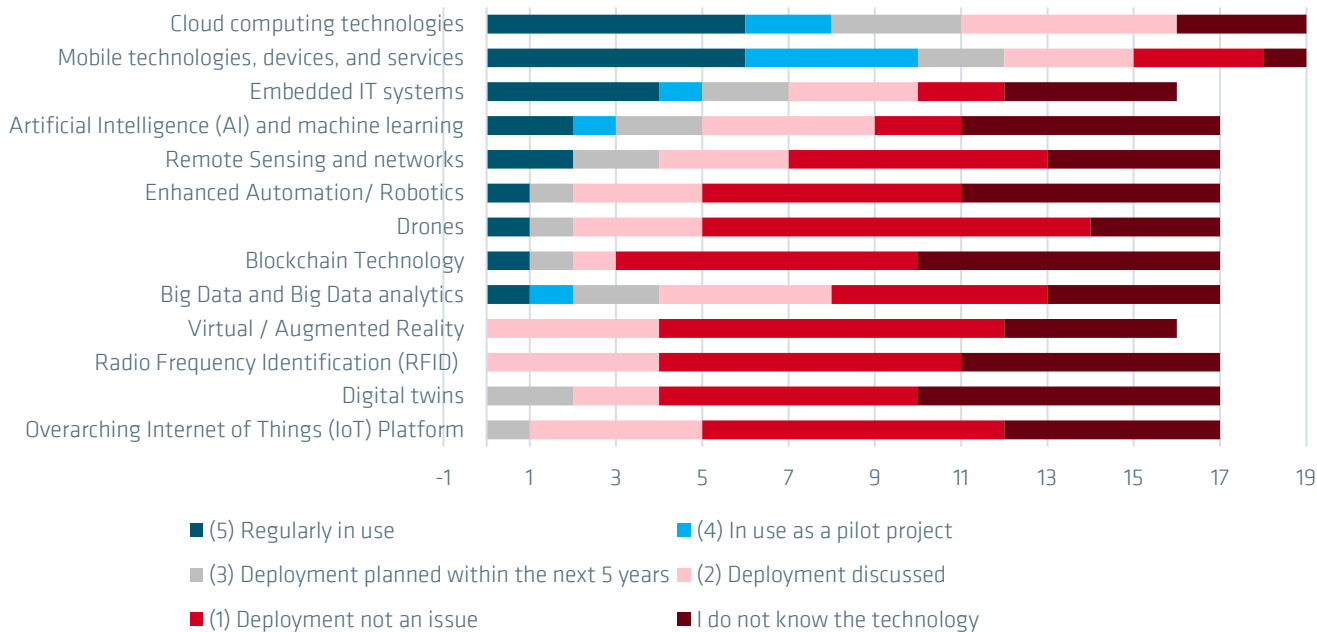
This section highlights the actual (or planned) use of concrete digital technologies and applications in the CABs. In addition, the use of remote procedures and technologies is presented.

---

[www.bam.de](http://www.bam.de)

# Latest digital technologies are not yet widely used in CABs

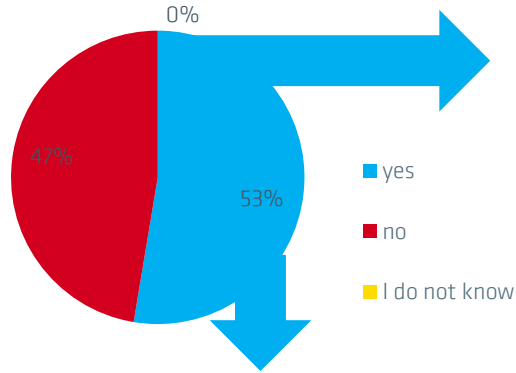
Technologies that are used or planned to be used (n=18)



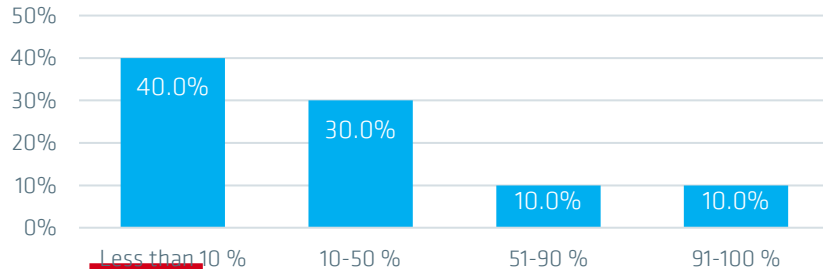
- Among CABs, Cloud computing technologies, Mobile technologies, devices, and services, and Embedded IT systems are the most widely used ones.
- Some of these latest digital technologies are used by the participating CABs, but not yet on a large scale.
- However, a high number of participating CABs does not know some of the latest digital technologies such as Digital Twins and Augmented Reality.

# Remote methods and technologies are used by most CABs

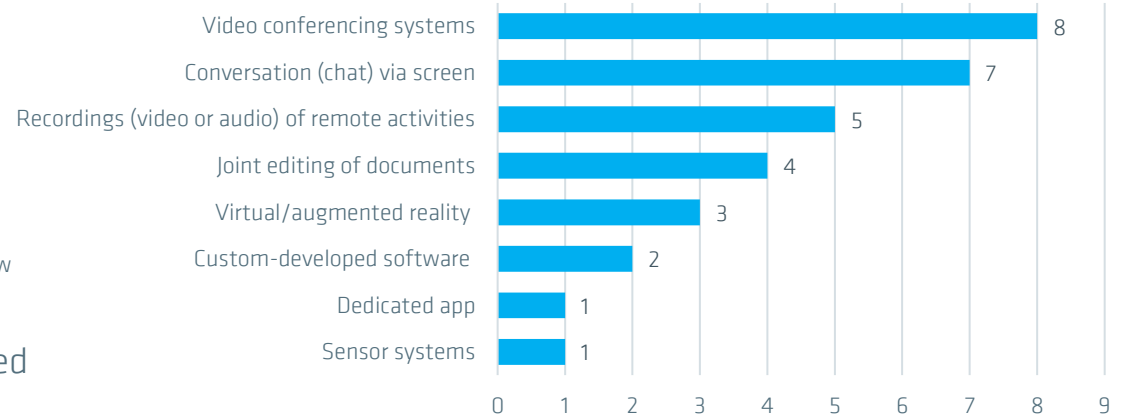
CABs that use remote methods in CA (n=19)



Share of CA services take implemented remotely (n=10)



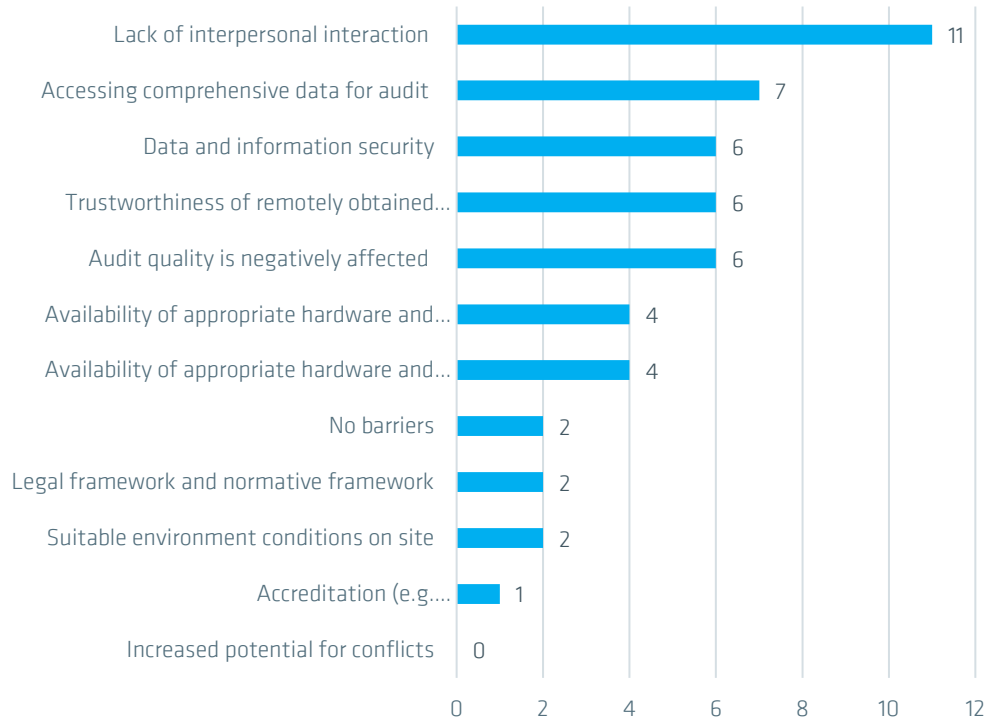
Technologies used for remote procedures (n=10)



- 53% of the CABs use **remote methods** in their CA activities.
- While 40% of them perform max. 10% of their activities remotely, 10% have switched completely.
- Video conferencing systems are the most commonly used **tool for remote working**. **Sensor systems** are only used by one of the CABs.

# Diverse approaches used and experienced hurdles in remote procedures

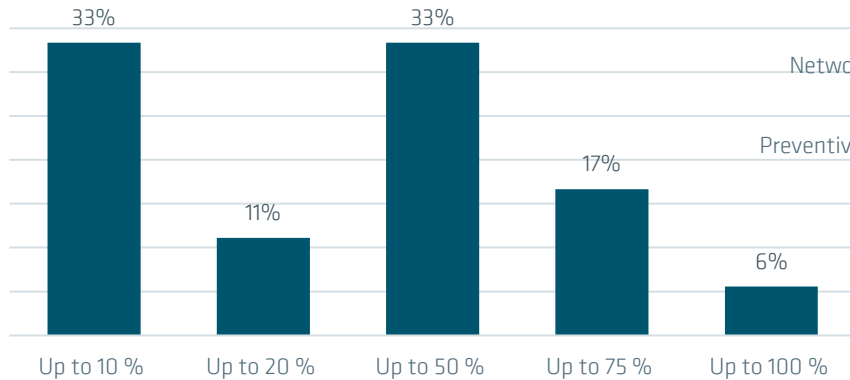
Barriers (n=21)



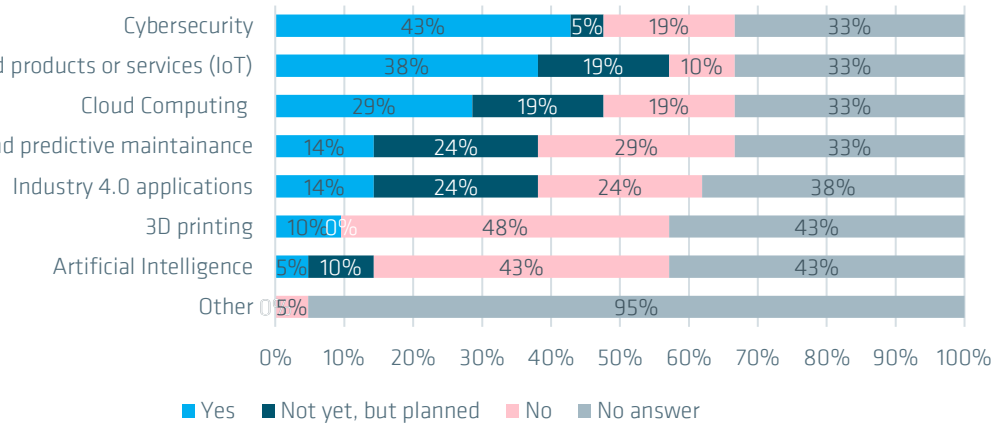
- When engaging in remote activities, the lack of interpersonal interaction is the main **barrier** experienced.
- Accessing comprehensive data for audit and data and information security are also important identified barriers.
- In addition, the CABs mentioned the negatively affected audit quality as a barrier.

# CA for advanced digital technologies is only performed by a minority of CABs so far

Share of routine processes that are digital  
(n=18)



Digital products and applications for which CA is conducted  
(n=21)



- Only 23% of the CABs have digitalized more than half of their **routine processes**. A high share (33%) have not even digitally converted 10% of their processes.
- Only 71% of the surveyed CABs conduct conformity assessments for modern digital technologies and applications. In focus: Cybersecurity (43%) and IoT (38%).

---

# The COVID-19 Pandemic and Digitalization

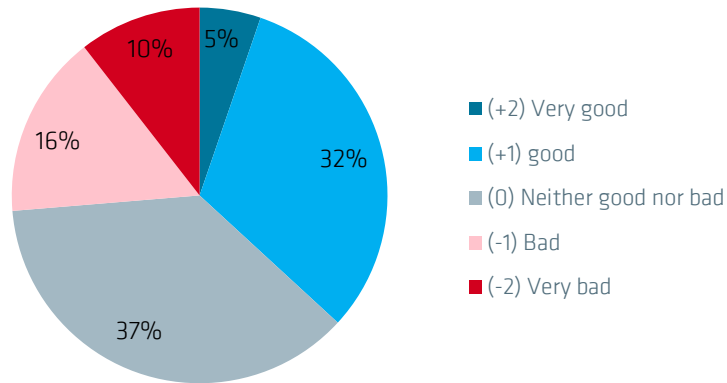
The role of digitalization in responding to the challenges posed by the COVID-19 pandemic and the impact of the pandemic on digitalization.

---

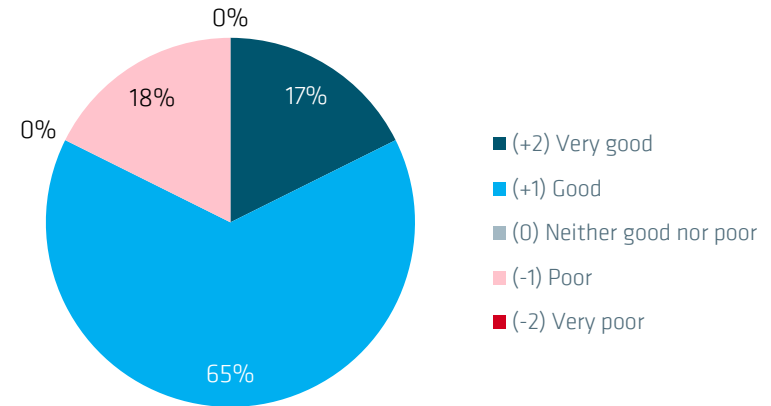
[www.bam.de](http://www.bam.de)

# Most CABs coped well with the COVID-19 pandemic

CABs' order situation in 2021 compared to pre-COVID-19 times (n=19)



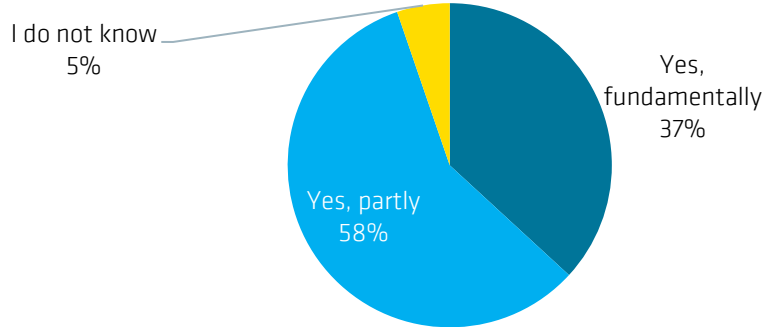
Response to the challenges of the COVID-19 pandemic (n=17)



- For 37% of the CABs, the **economic situation** in terms of incoming orders in 2021 was no better or worse than before the pandemic. 27% stated that their orders have declined, and 37% of CABs have actually seen their order situation improve.
- The majority of CABs (82%) reported that they have **responded** well or very well to the challenges associated with the COVID-19 pandemic.

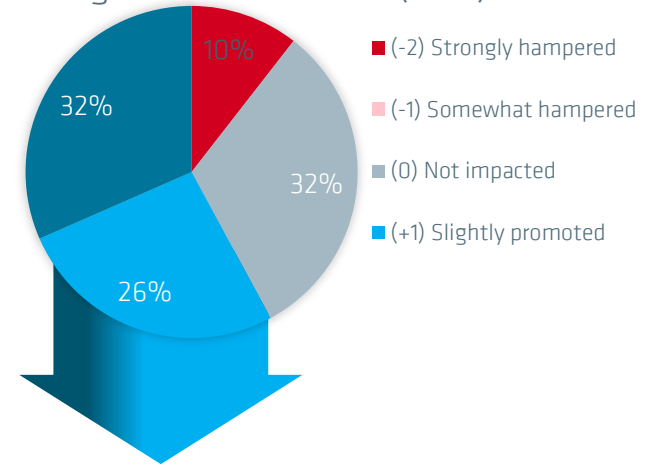
# Pandemic and Digitalization

Digital technologies have helped coping with challenges of the COVID -19 pandemic (n=19)

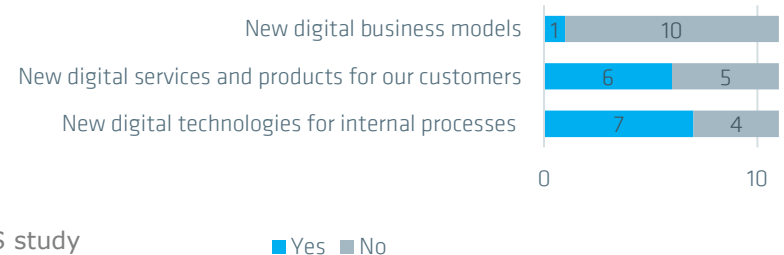


- For 95% of the CABs, digital technologies have helped cope with the challenges of the COVID-19 pandemic.
- The COVID-19 pandemic has slightly or even strongly promoted digital transformation in 58% of the CABs. Only 10% of CABs saw their digitalization efforts strongly hampered and 32% reported no **impact of** the pandemic on its digitalization.
- The pandemic might have forced digital adaptations: 64% of the CABs have introduced new digital technologies for internal processes.
- 54% introduced new digital services and products for their customers, and only 1 CAB adopted new digital business models.

Impact of the Covid-19 pandemic on the digitalization of CABs (n=19)



Digital adaptation in course of the COVID-19 pandemic (n=11)





# Conclusion and Outlook

- CABs in Africa clearly see digital transformation as an opportunity. The **level of digitalization** varies widely. The majority of participants has reached a medium level of digital maturity. However, a relative high share is still at the first stage of digital maturity .
- The **digital transformation process** in African countries CABs open to new technologies, change, and transformation. This is followed by holistic organizational transformation, including strategy, strong innovation networks, IT and cooperation.
- All the **cutting-edge digital technologies** such as Big Data, artificial intelligence and virtual reality are known and used by CABs in Africa, but not yet on a large scale.
- With their digitalization efforts, the CABs are primarily **following** the “spirit of innovation” and improving customer management/communication. In fact, improved satisfaction of customers and improved sustainability are considered as greatest realized benefits. Market objectives are not big drivers for digitalization.

## Africa CABs in international comparison

How do African conformity assessment bodies compare internationally? We have conducted the survey on digitalization in conformity assessment in around 20 other countries. The individual country reports and a final comparative study will be published step by step on our website. Articles and an extensive report with further detailed analyses are also planned.

➔ [www.qi-fokus.de](http://www.qi-fokus.de)



This study was developed in the context of the QI-Digital initiative. Its goal is to develop solutions for a modern digital quality infrastructure (QI) - together with stakeholders from business, politics, science, and QI.

More information on the initiative and the opportunities for participation can be found at

➔ [www.qi-digital.de](http://www.qi-digital.de)

# The Project and Contacts

## Project partners



Supported by



## Scientific execution / authors

Dr. Luana Ladu, Dr. Claudia Koch, Parsa Asna Ashari (BAM)

Prof. Dr. Knut Blind (TU Berlin, Fraunhofer ISI)

Prof. Dr. Pavel Castka (University of Canterbury, NZL)

Support: Timo Kabierski



## Acknowledgement

We would like to thank UNIDO for their support in conducting this study. Our thanks further goes to all those who were involved in the preparation and implementation of this study, e.g., who were available for expert interviews and questionnaire tests.

**QI-FoKuS** stands for **Qualitätsinfrastruktur - Forschung für Konformitätsbewertung und Sicherheit** ("Quality Infrastructure - Research for Conformity Assessment and Safety").

The initiative was launched jointly by BAM and TU Berlin in 2019 and is supported by the Federal Ministry of Economic Affairs and Climate Action (BMWK).

We conduct studies on current and fundamental topics of conformity assessment and accreditation. The studies are based on our comprehensive surveys of companies and in particular conformity assessment bodies in Germany and abroad. By publishing the results, we contribute to an improved database, scientifically sound findings and the identification of trends in quality infrastructure.

 [www.qi-fokus.de](http://www.qi-fokus.de)

---

## Contact

### **Bundesanstalt für Materialforschung und –prüfung (BAM)**

S.2 Accreditation and Conformity Assessment

[www.qi-fokus.de](http://www.qi-fokus.de)

[qi-fokus@bam.de](mailto:qi-fokus@bam.de)

Dr. rer. oec. Claudia Koch

Tel.: +49 30 8104-3718

e-mail: [claudia.koch@bam.de](mailto:claudia.koch@bam.de)

Dr. rer. oec. Luana Ladu

Tel.: +49 30 8104-4485

e-mail: [luana.ladu@bam.de](mailto:luana.ladu@bam.de)

[www.bam.de](http://www.bam.de)

---

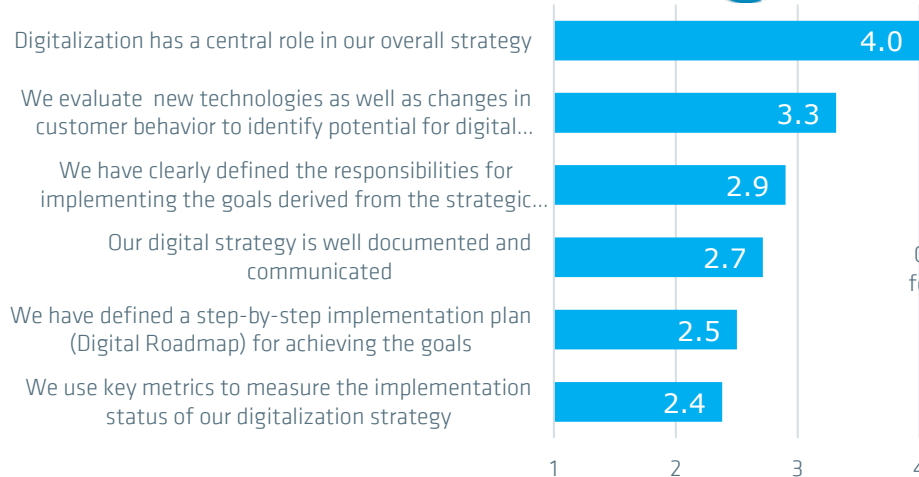
# Annexes

[www.bam.de](http://www.bam.de)

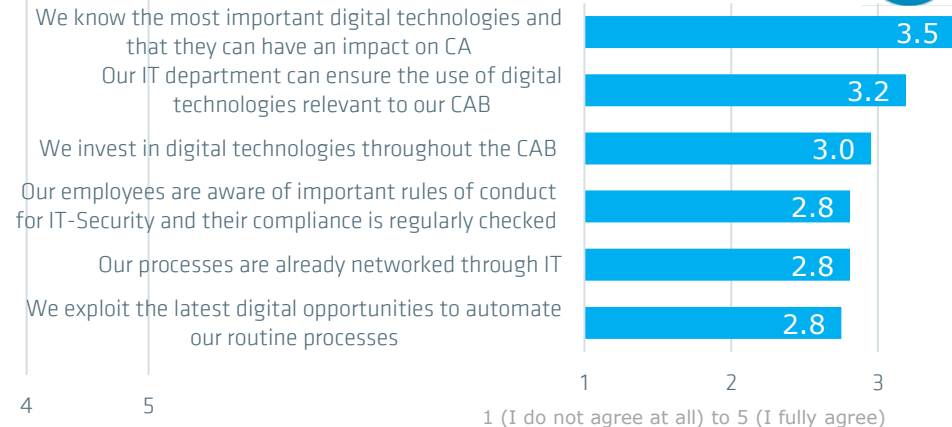
# Dimensions of digital maturity: Detailed overview



## Dimension: Strategy (n=21)



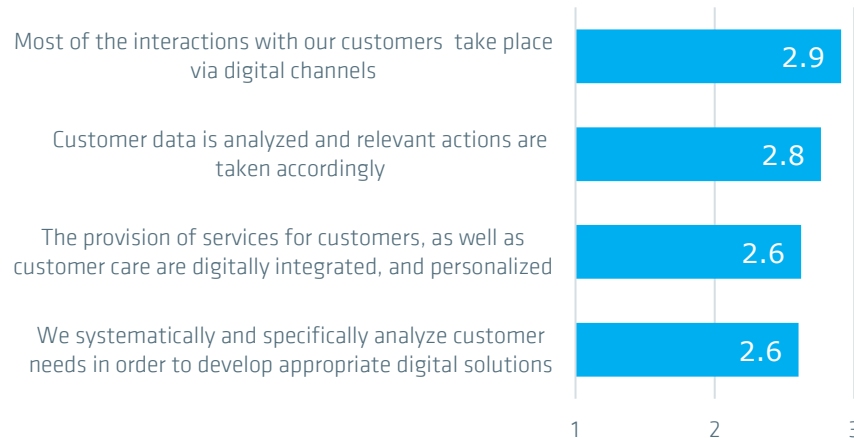
## Dimension: Information Technology & Process Digitalization (n=21)



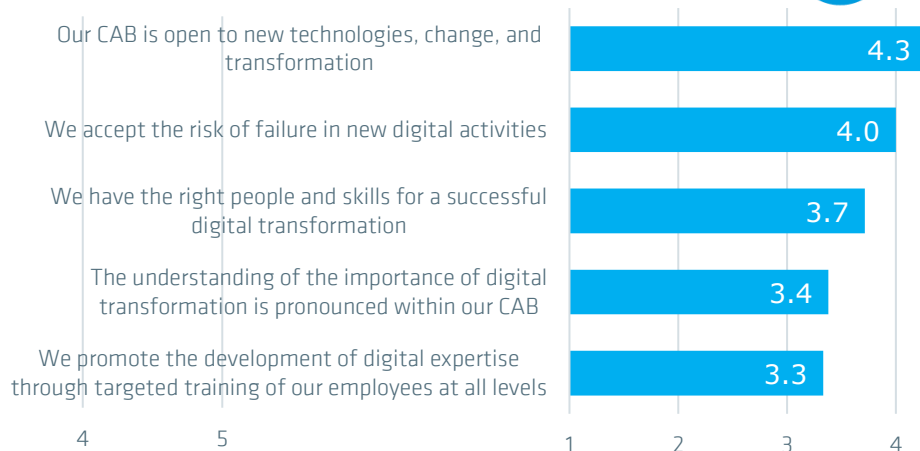
- In most CABs (80%), digitalization plays a central role in their overall strategy, with 54% having a well documented digital strategy.
- 50% have set up a Digital Roadmap and 48% use key metrics to measure the implementation status of their digitalization strategy.
- At least 70% of CABs are aware of the most important digital technologies and their impact on CA and 67% are able to use digital technologies properly while complying with IT security regulations. About 56% of CABs have networked their processes and automated routine procedures.

# Dimensions of digital maturity: Detailed overview

Dimension: Customers (n=21)



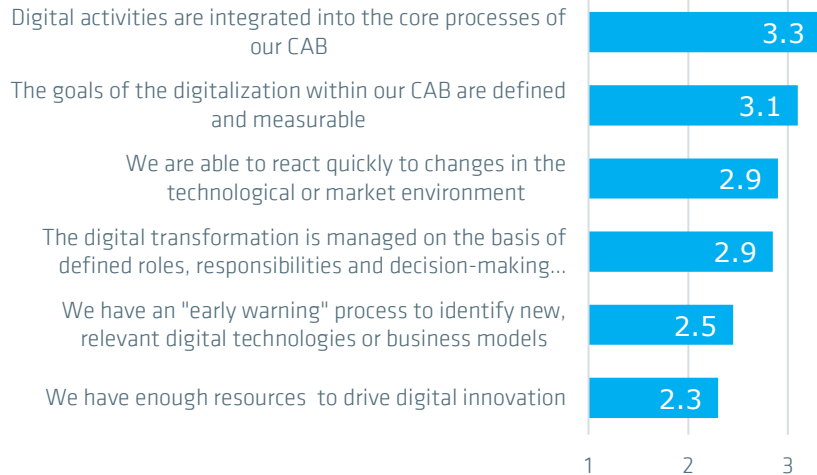
Dimension: Culture & Expertise (n=21)



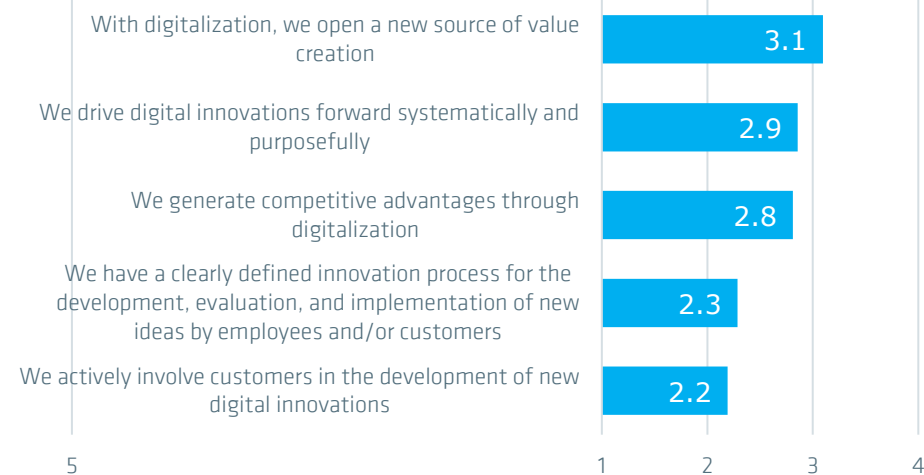
- 58% of African CABs interact with their customers via digital channels.
- 52% offer digitally integrated services to customers and 55% analyze customer data and take relevant actions accordingly.
- CABs in Africa are definitely open to new technologies, changes and transformations (95%). At least 82% have the right skills to successfully implement the change and 75% of them have a strong understanding of the importance of digital transformation.

# Dimensions of digital maturity: Detailed overview

## Dimension: Organization & Change Management (n=21)



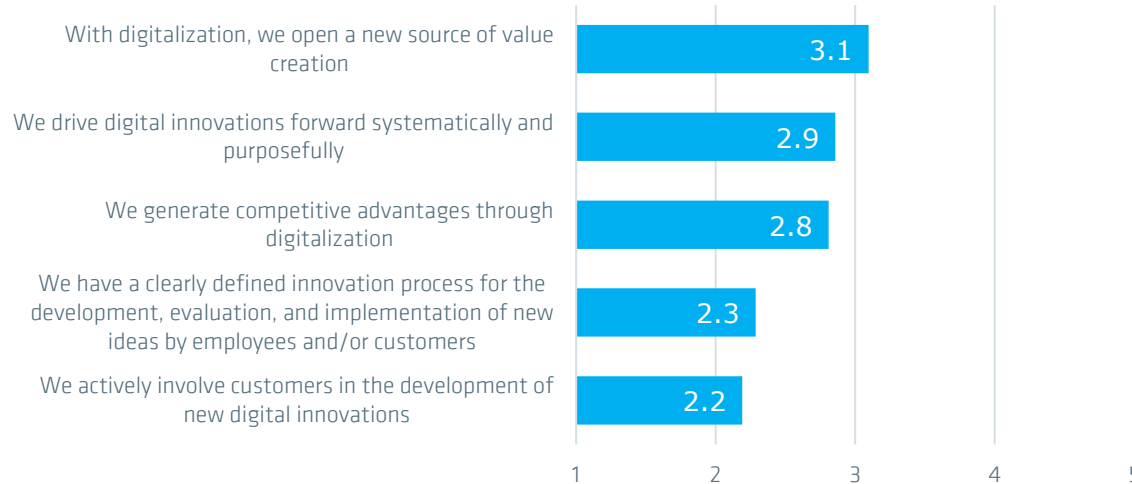
## Dimension: Innovation (n=21)



- 67% of CABs have integrated digital activities into their core processes. The clear definition of responsibilities and strategic goals is key to the implementation of digital transformation.
- For the majority of participants (74%), digitalization represents a new source of value creation.
- However, customers are hardly involved in the innovation process.

# Dimensions of digital maturity: Detailed overview

## Dimension: Innovation (n=21)










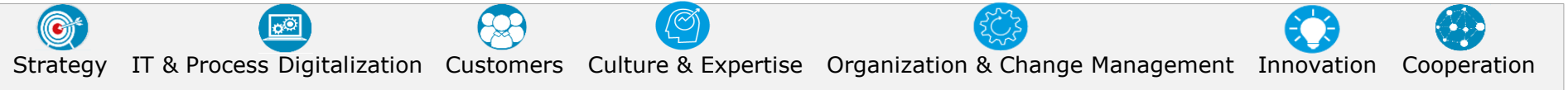
- In order to work on the topic of digitalization, 77% of CABs work across department and functions. They also use expert consultations to build up additional knowledge.
- 56% maintain a partner network with external service providers.



# Digital Maturity Model








## Level 1 (Beginner)

Description Level 1: Beginner	Dimensions						
							
Digitalization has a central role in our overall strategy	■						
We evaluate new technologies as well as changes in customer behavior to identify potential for digital innovation	■						
Our employees are aware of important rules of conduct for IT Security and their compliance is regularly checked		■					
Our CAB is open to new technologies, change and transformation				■			



# Digital Maturity Model








## Level 2








Description Level 2	Dimensions						
							
Our processes are already networked through IT		■					
Our IT department can ensure the use of digital technologies relevant to our CAB		■					
Most of the interactions with our customers (e.g., advise, purchase conclusion and customer service) take place via digital channels			■				
The provision of services for customers, as well as customer care are digitally integrated, and personalized			■				
The understanding of the importance of digital transformation is pronounced within our CAB				■			
We have the right people and skills for a successful digital transformation				■			
We accept the risk of failure in new digital activities				■			
Our employees are aware of important rules of conduct for IT Security and their compliance is regularly checked					■		
With digitalization, we open a new source of value creation						■	
We work across departments and functions on the topic of digitalization							■
We use exchanges with external experts to build up additional knowledge in the area of digitalization							■

 Strategy
  IT & Process Digitalization
  Customers
  Culture & Expertise
  Organization & Change Management
  Innovation
  Cooperation

# Digital Maturity Model








## Level 3

Description Level 3	Dimensions						
							
We know the most important digital technologies and that they can have an impact on CA		■					
We invest in digital technologies throughout the CAB		■					
We systematically and specifically analyze customer needs in order to develop appropriate digital solutions			■				
Customer data is analyzed, and relevant actions are taken accordingly			■				
We promote the development of digital expertise through targeted training of our employees at all levels				■			
We drive digital innovations forward systematically and purposefully						■	
We collaborate effectively with stakeholders on digital initiatives							■
We undertake actions (e.g., workplace concepts) that support employees in collaborating effectively							■

 Strategy
  IT & Process Digitalization
  Customers
  Culture & Expertise
  Organization & Change Management
  Innovation
  Cooperation

# Digital Maturity Model

## Level 4

Description Level 4	Dimensions						
							
We exploit the latest digital opportunities to automate our routine processes							
The goals of the digitalization within our CAB are defined and measurable							
The digital transformation is managed on the basis of defined roles, responsibilities and decision-making processes							
We actively involve customers in the development of new digital innovations							
We have a clearly defined innovation process for the development, evaluation, and implementation of new ideas by employees and/or customers							
We generate competitive advantages through digitalization							
In the field of digitalization, we maintain a partner network with external service providers, start-ups, or research institutions							



Strategy



IT & Process Digitalization



Customers



Culture & Expertise



Organization & Change Management



Innovation



Cooperation

# Digital Maturity Model

## Level 5 (Experts)

Description Level 5: Expert	Dimensions						
							
Our digital strategy is well documented and communicated							
We use key metrics to measure the implementation status of our digitalization strategy							
We have clearly defined the responsibilities for implementing the goals derived from the strategic consideration on digitalization							
We have defined a step-by-step implementation plan (Digital Roadmap) for achieving the goals							
We have an "early warning" process to identify new, relevant digital technologies or business models for us							
We are able to react quickly to changes in the technological or market environment							
We have clearly defined the responsibilities for implementing the goals derived from the strategic consideration on digitalization							

