



Sicherheit in Technik und Chemie

2022

Digitalization in Conformity Assessment in Latvia

A QI-FoKuS study

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



Basic statistical population for the survey	309 accredited conformity assessment bodies (CABs) in Latvia
Data collection method	Online survey
Survey period	December 16, 2021 January 31, 2022
Sample	27 fully completed questionnaires (= 9% 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 depend 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, digitalization also offers new opportunities. Our QI-FoKuS study explores "Digitalization in Conformity Assessment" based on data from an online survey of accredited CABs.

Major topic areas covered:

Digital Maturity Level

- Assessment of digital readiness and status of digital transformation in CABs based on a tailored digital maturity model

Drivers, Benefits and Barriers

- Drivers and motives for digital transformation, the benefits and impacts realized, and barriers faced by CABs towards digital transformation

Technology Trends

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

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The sample

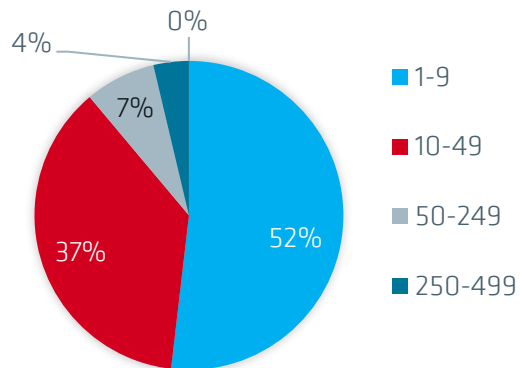
General information about the participating
Conformity Assessment Bodies

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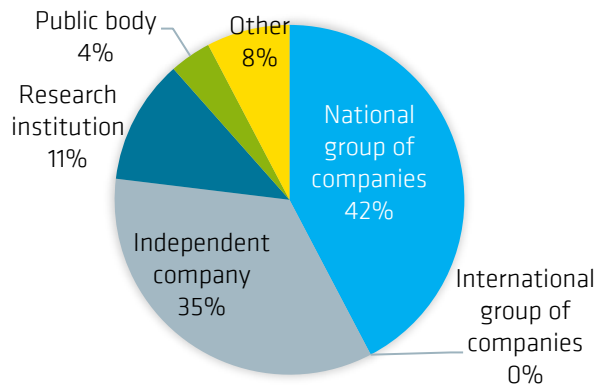
27 conformity assessment bodies (CAB) in Latvia participated in the survey

- 89% of participating CABs are **small businesses** with less than 50 employees
- Every third CAB is an **independent company**, 42% belong to a **national group**, 8% are **public bodies**
- For 42% Conformity Assessment (CA) is the main economic **focus of activity**, 19% are an **internal CAB** of a higher-level organization

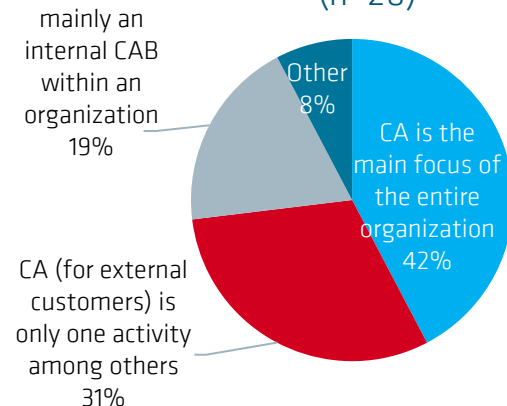
Number of employees (n=27)



Type of organization (n=26)

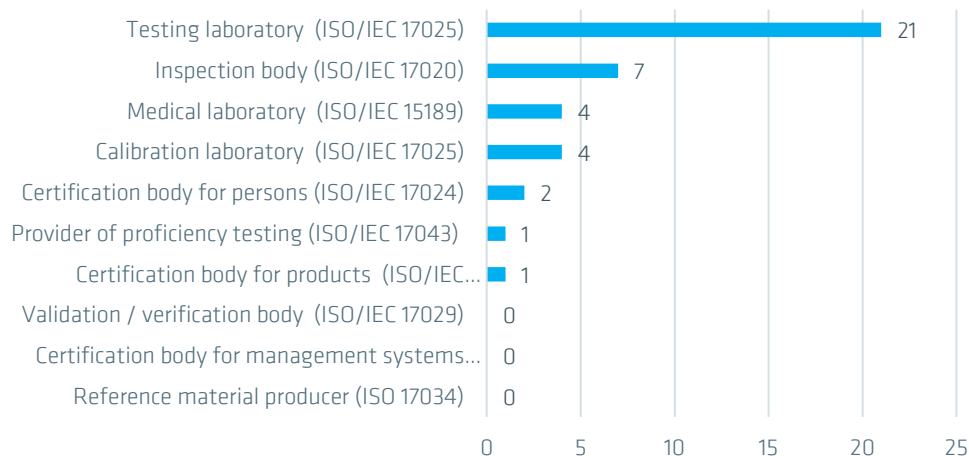


Role of CA for the organization (n=26)

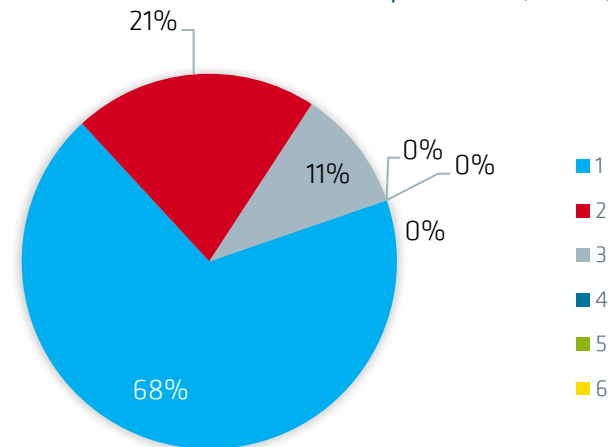


The 27 participating CABs cover a broad range of activities

Field of activity



Number of fields of CA activities per CAB (n=26)

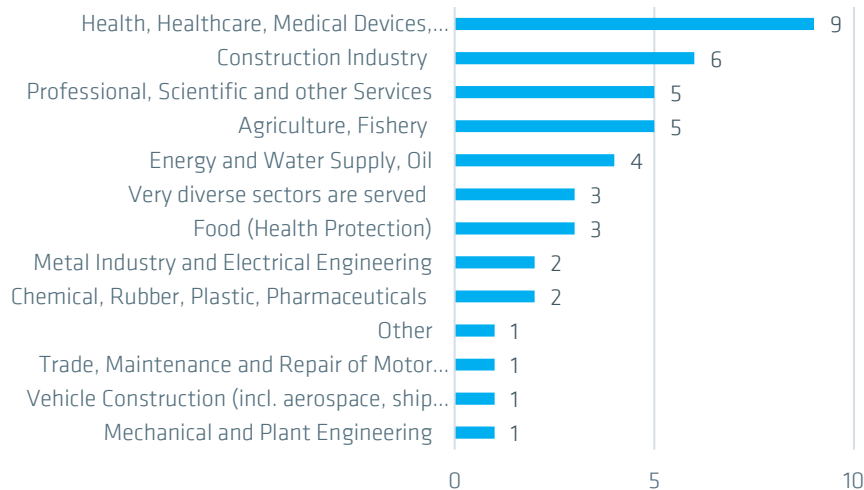


- Testing laboratories represent the **largest group of participants**, followed inspection bodies
- 68% of CABs **specialize** in a single field of activity in conformity assessment; almost every third CAB covers a broad range of activity fields (up to 3)

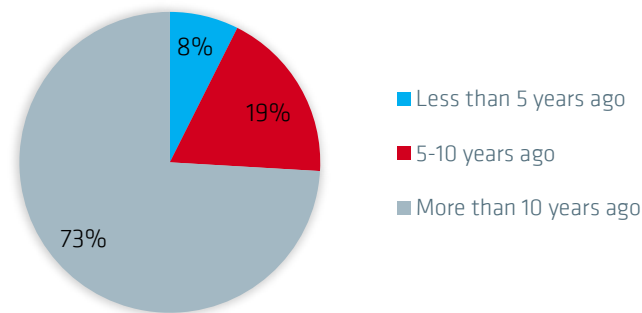
The CABs serve a broad spectrum of sectors // most of them are established on the market for a long time



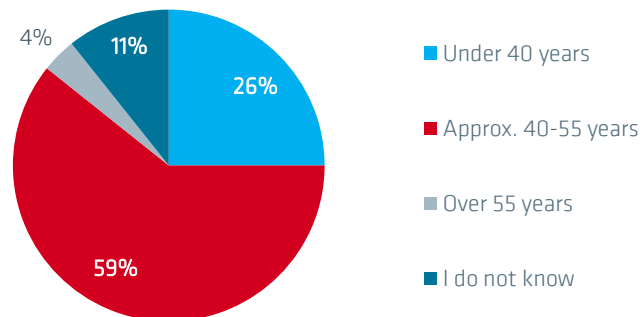
Main sectors served by CABs



Establishment of the CAB (n=26)



Average age of employees (n=27)



- Customers served by CABs are mainly from the **health sector**
- 73% of CABs were **established** more than 10 years ago
- While the **average age of the employees** in 59% of CABs is 40-55 years, only one every fourth CAB has staff under 40 years on average

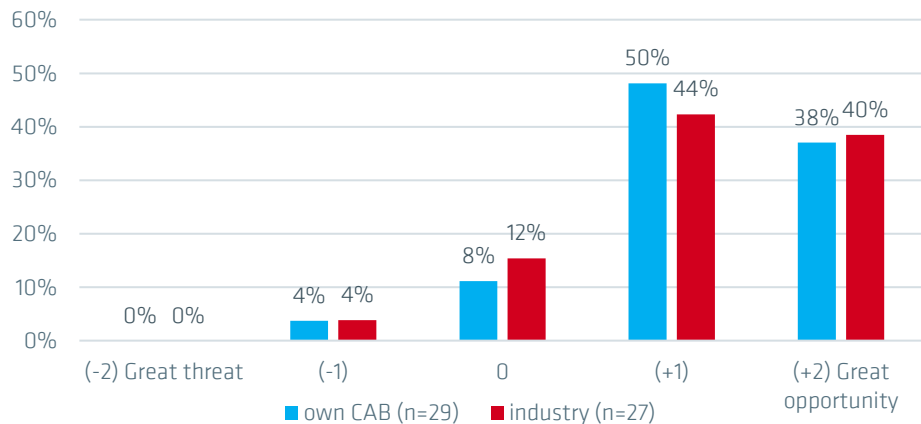
Digitalization in Latvian CABs A General Overview

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.

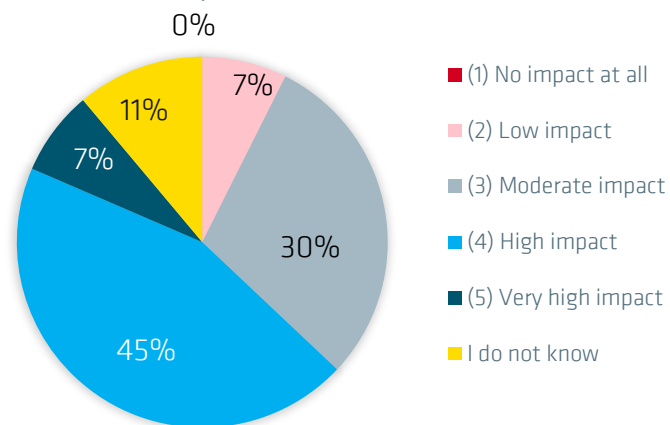
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Digitalization more of an opportunity than a threat // Great influence expected

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



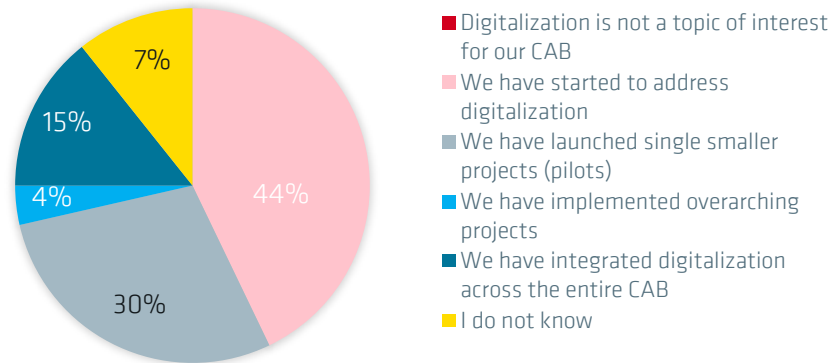
Expected impact of digitalization in the next 5-10 years (n=27)



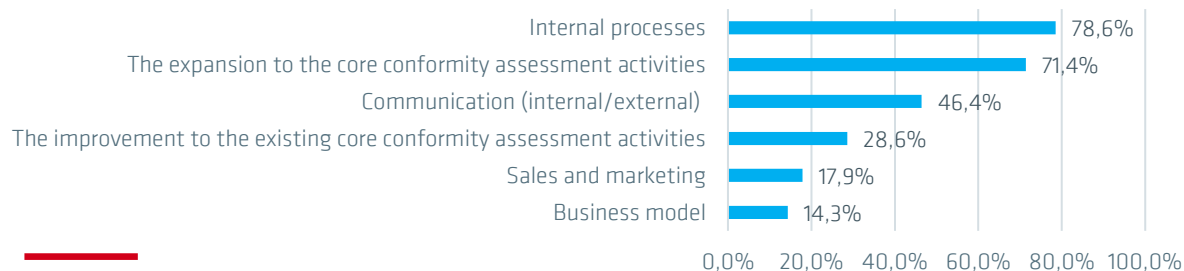
- The CABs have a **positive perception** of digitalization: More than 80% of surveyed CABs recognize digitalization as an **opportunity or even a great opportunity** rather than a threat, both, for the own organization and for the whole CA industry.
- 75% of the participants expect digitalization to have a **great or even very great impact on CA activities** in the next 5-10 years.

State of digitization varies widely // Focus mainly BAM on internal processes

Status and extent of digitalization in the CABs (n=27)



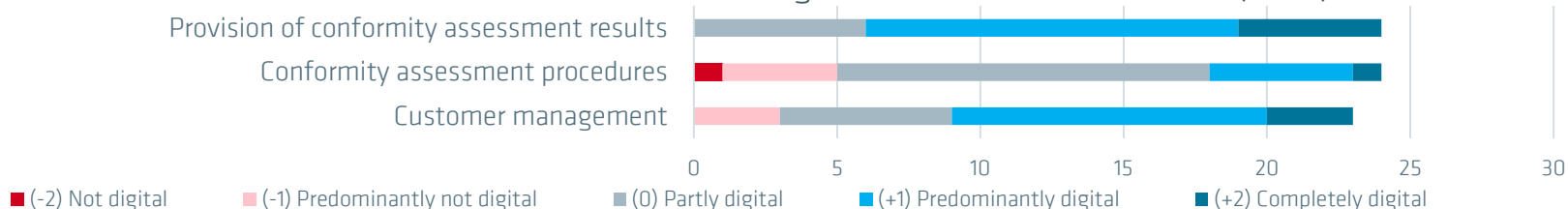
Areas targeted by digitalization (multiple answers possible)



- **The status of digitalization is quite diverse** across the CABs in Latvia: While 44% of the CABs have just started to address this topic, 30% have already launched single smaller projects and only 4% have already implemented overarching projects. 15% state to have integrated digitalization across the whole organization.
- Although most of the **digitalization activities concern internal processes** and the **expansion of CA activities**, communication is also a relevant area. However, digitalization is currently rarely used for sales and marketing or to adopt new business models.

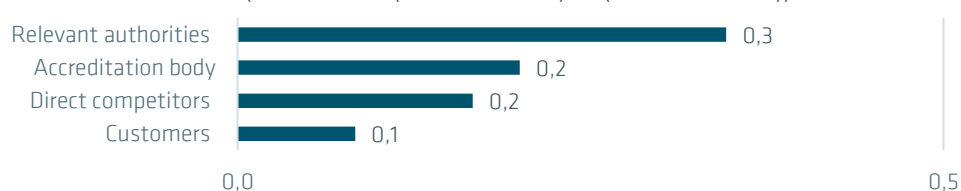
Positive self-assessment on digitization in core areas and in comparison with stakeholders

Self-evaluation of the CABs' status of digitalization in different areas (n=26)

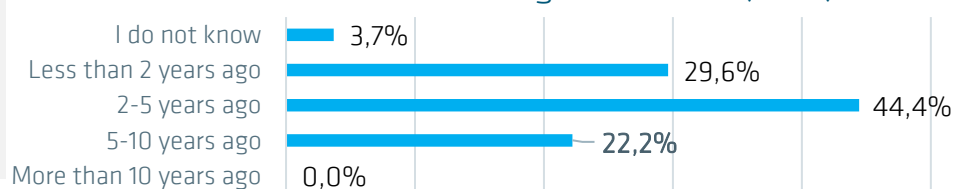


- The CA results are provided predominantly or completely digitally by the majority of the CABs. CA procedures and customer management are less frequently digitalized.
- Compared to **other organizations** that are direct stakeholders, the CABs rate their digital status as at least as good or better on average, especially with regard to relevant authorities.
- Digitalization has not been a topic for long: more than two thirds of the participating CABs **have only started to deal with it** during the last 5 years. None of them has done so at least 10 years ago.

Own status of digitalization compared to... (n=23)
(on a scale of (-2 much worse) to (+2 much better))



CABs started to deal with digitalization... (n=27)

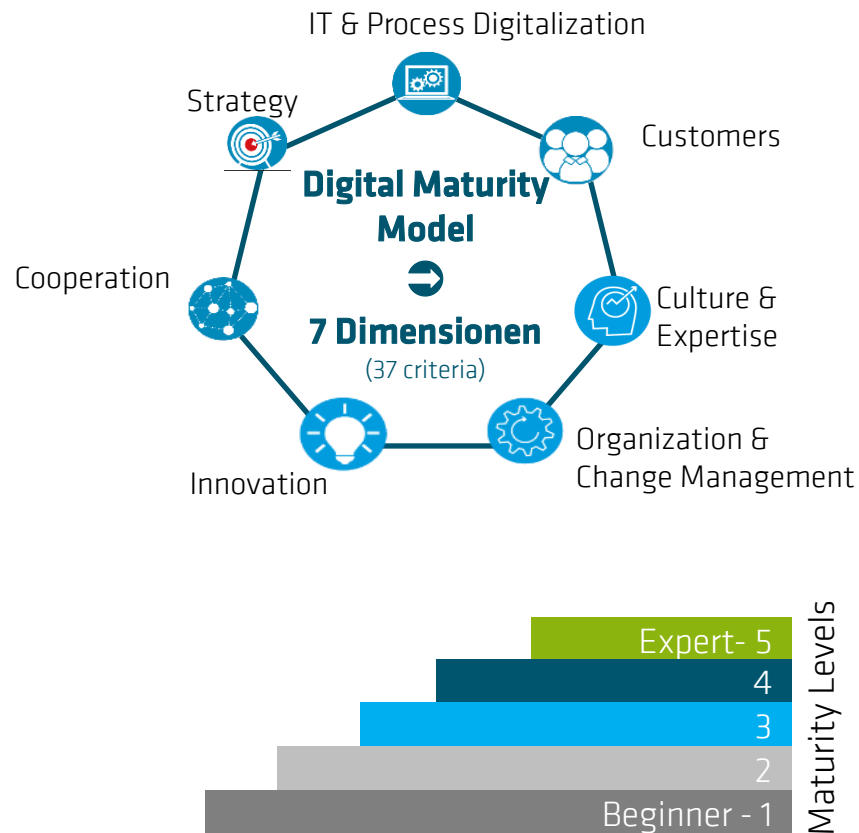


Digital Maturity of CABs

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 CABs in Latvia based on a model developed specifically for this study.

The digital maturity model for the conformity assessment industry

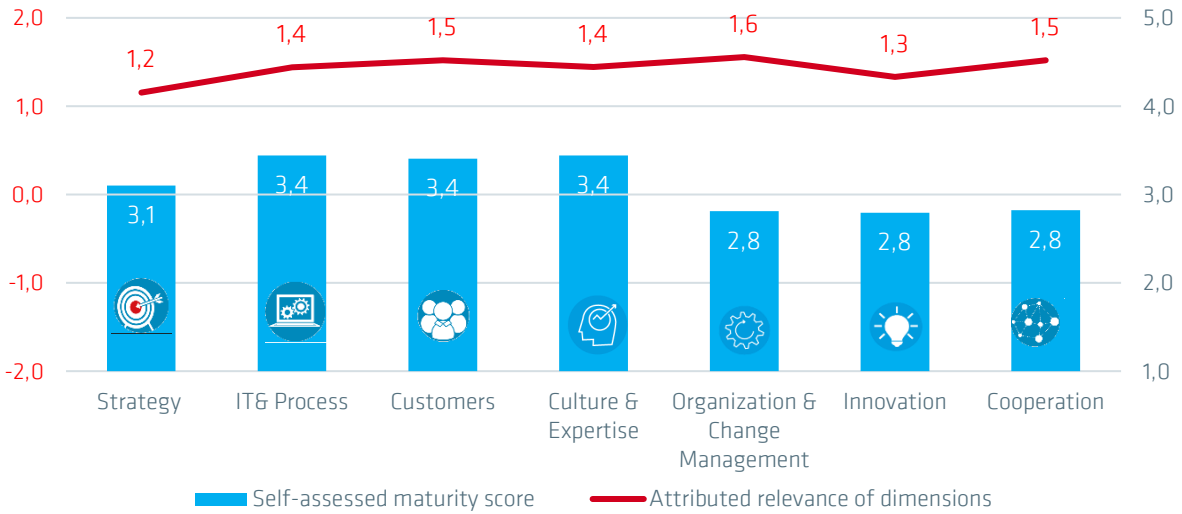
- The digital maturity level reflects the status of the digital transformation of an organization and includes technical as well as organizational and strategic aspects.
- Becoming a digitally mature organization requires efforts, **capabilities** and **resources** across many areas.
- These are mapped 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: IT, Customers and Culture advanced while innovation and organization not yet



Self-assessed along the relevant dimensions and assigned relevance



- 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 "IT & Process", "Customers" and " Culture and Expertise", followed by "Strategy".
 - CABs consider to be less digital matured in the areas of "Organization & Change Management," "Innovation" and "Cooperation".
- Respondents are aware of their high relevance of the Organization dimension, followed by Cooperation and Customers.

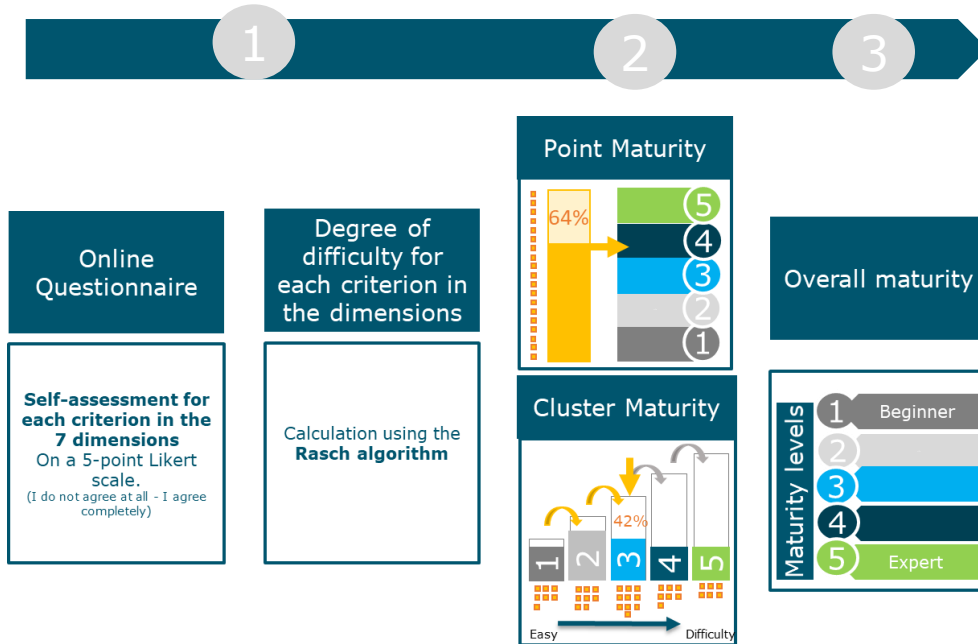
➔ *Details on the composition and partial results in the individual dimensions can be found in the appendix.*

* 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

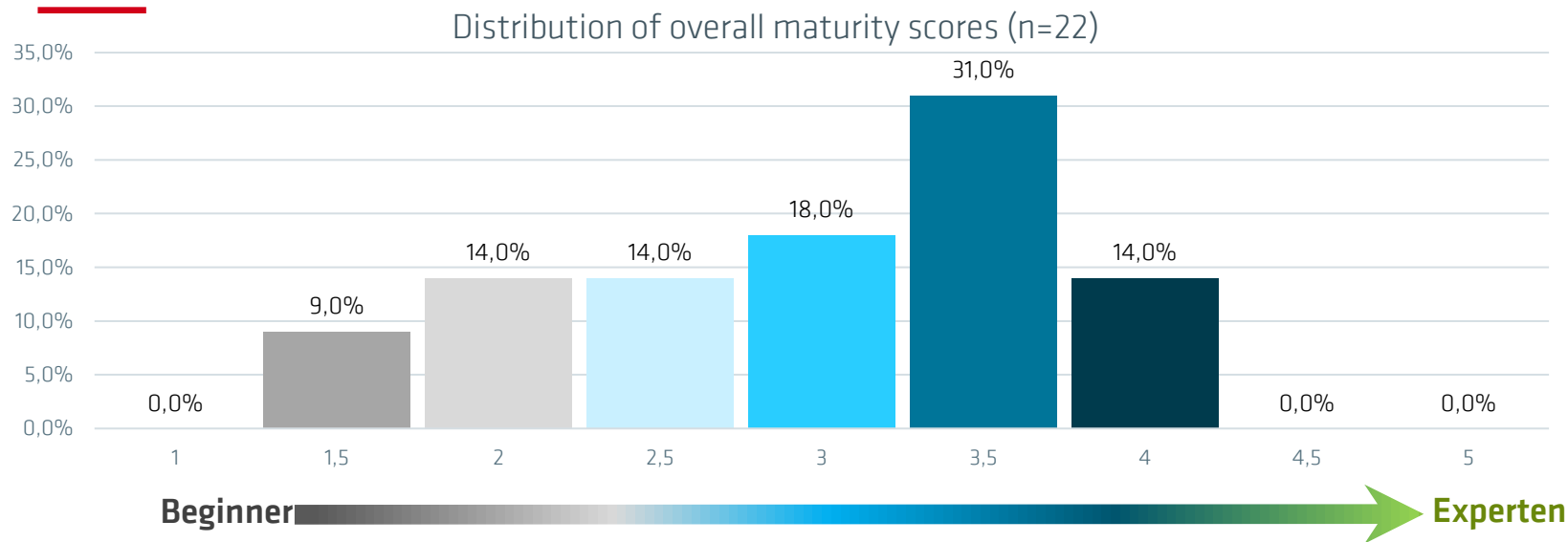
In the questionnaire, participants indicate the extent to which each of the criteria in the 7 dimensions applies to their CAB. In a **multi-stage process**, digital maturity is determined on the basis of these assessments:

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 Latvian CA industry



The digital maturity levels achieved by the 22 participating CABs in Latvia follow a left-skew distribution:

- One in two CABs has reached medium level 3, and 14% have already reached the level of maturity 4. However, even more, namely 37%, still have a lower maturity level.
- No CAB has yet reached expert level 5; rather, 9% are still at a beginner level of 1,5.

The 5 Digital Maturity stages in Irish CABs

Beginner

1

- ✓ IT security: awareness and compliance
- ✓ Openness to change

2

- ✓ Evaluation of dig. technologies with regard to innovation potential
- ✓ Networked processes
- ✓ Investment in digital technologies
- ✓ Digitalized customers' interactions
- ✓ Digital solutions based on customer needs
- ✓ Right skills for digital Transformation
- ✓ Digital activities integrated into core processes
- ✓ Work across departments

Intermediate

3

- ✓ Digitalization has central role in strategy
- ✓ Documented digital strategy
- ✓ Automated routine processes
- ✓ Most important technologies are known
- ✓ IT usage reliably ensured
- ✓ Analysis of customer data
- ✓ Digitalized customer care
- ✓ Digital expertise
- ✓ Digital transformation is important
- ✓ Risk of failure accepted
- ✓ Digital innovations are driven forward systematically and purposefully
- ✓ Digitalization as a new source of value creation
- ✓ Collaboration with stakeholders
- ✓ Collaboration supported
- ✓ Exchanges with xternal experts

4

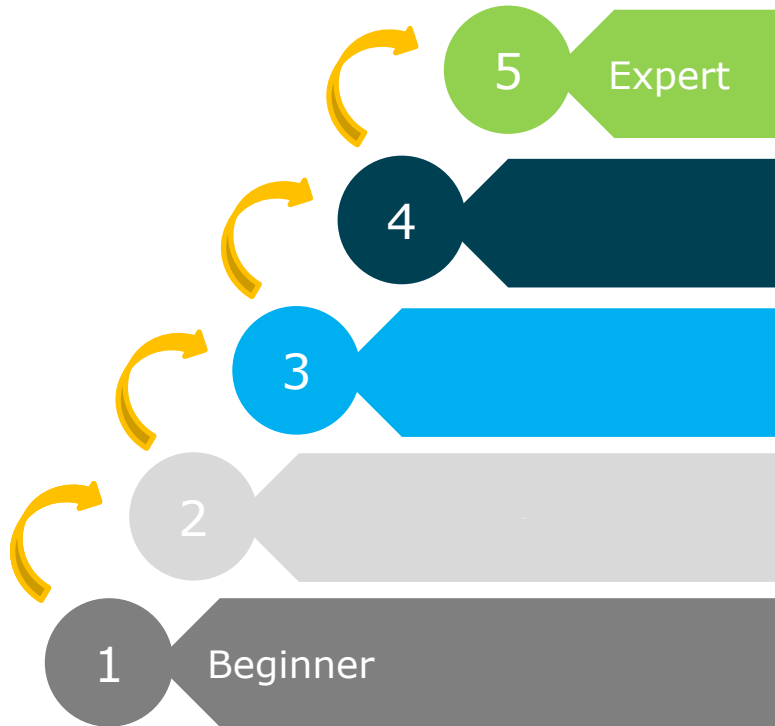
- ✓ Responsibilities for strategic goals
- ✓ Digital Roadmap
- ✓ Quick reaction to change
- ✓ Structured digital transformation
- ✓ Digitalization goals defined and measurable
- ✓ Resources to drive digital innovation
- ✓ Competitive advantages generated
- ✓ Network of partners

Expert

5

- ✓ Key indicators for measuring the implementation of the digital strategy
- ✓ Documented digital strategy
- ✓ Early warning system to identify relevant digital technologies and business models
- ✓ Customers involved in development of digital innovations
- ✓ Defined innovation process

The Digital Maturity of CABs in Latvia // Summary of the Observed Patterns



- In the **first maturity level**, CABs are already open to new technologies, change and transformation.
- At the **second maturity level** organizations are intentionally trying to implement digital solutions, investing in digital technologies. CABs count with the needed necessary skills for the digital transformation. Digital solutions are based on customers needs and there is cross-functional and cross-departmental collaboration on the topic.
- In **stage three**, CABs have well documented digital strategies and latest digital opportunities to automatize routine processes are exploited. To this end, internal and external collaboration is strengthened. Digitization is recognized and pursued as a driver of new value creation.
- In the **fourth maturity stage**, the focus is on organizational adaptation, with the definition of responsibilities and resource allocation. Competitive advantages through digitalization are generated.
- In the final **fifth stage** CABs use key metrics to measure the implementation status of its digitalization strategy. It is characterized by involvement of customers in the development of new digital innovations.

Motives, Impacts and Hurdles of Digitalization

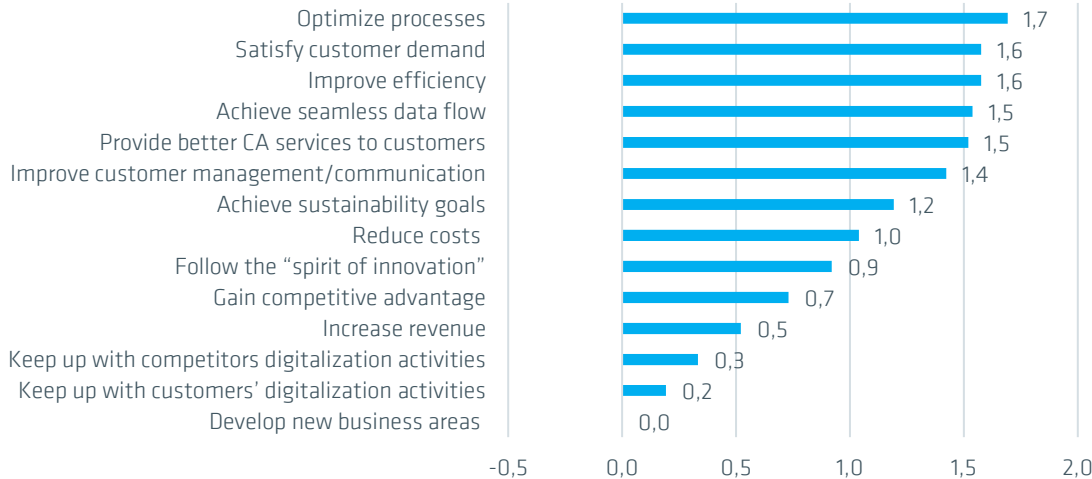
What is driving digitization in the CABs? What effects can be achieved for the organizations? Are expectations being met? And what are the biggest hurdles to be overcome in the digital transformation?

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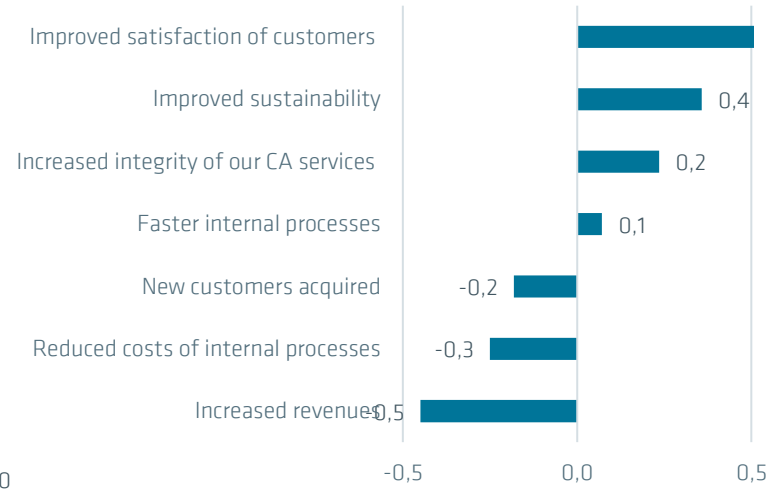
Focus on process optimization and satisfaction of customer demand



Goals behind the digitalization efforts (n=26)
(on a scale from (-2) does not apply at all to (+2) fully applies)



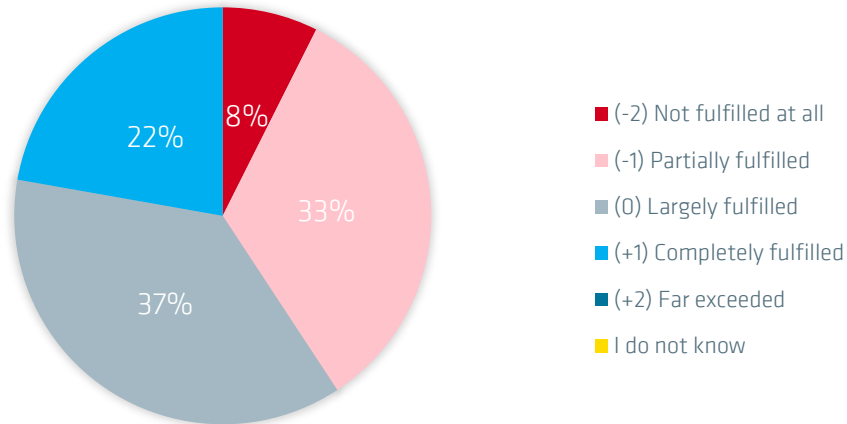
Benefits realized from digitalization (n=23)
(on a scale from (-2) not agree at all to (+2) fully agree)



- Process optimization is the **main goals** behind the digitization efforts of CABs in Latvia, followed by the improvement of efficiency. Satisfying customer is an equally important goal and the improved satisfaction of customers is the greatest and most frequently realized effect. Interesting, CABs in Latvia digitalization contributed in improving sustainability.
- Market objectives such as the development of new business areas are not drivers - and the effects realized on new customers acquisition are correspondingly low. The increase in revenues and the reduction of costs are not yet benefits realized through digitalization

CABs' expectations in connection with digitalization are mostly partially met

Fulfillment of expectations linked to digital transformation (n=26)

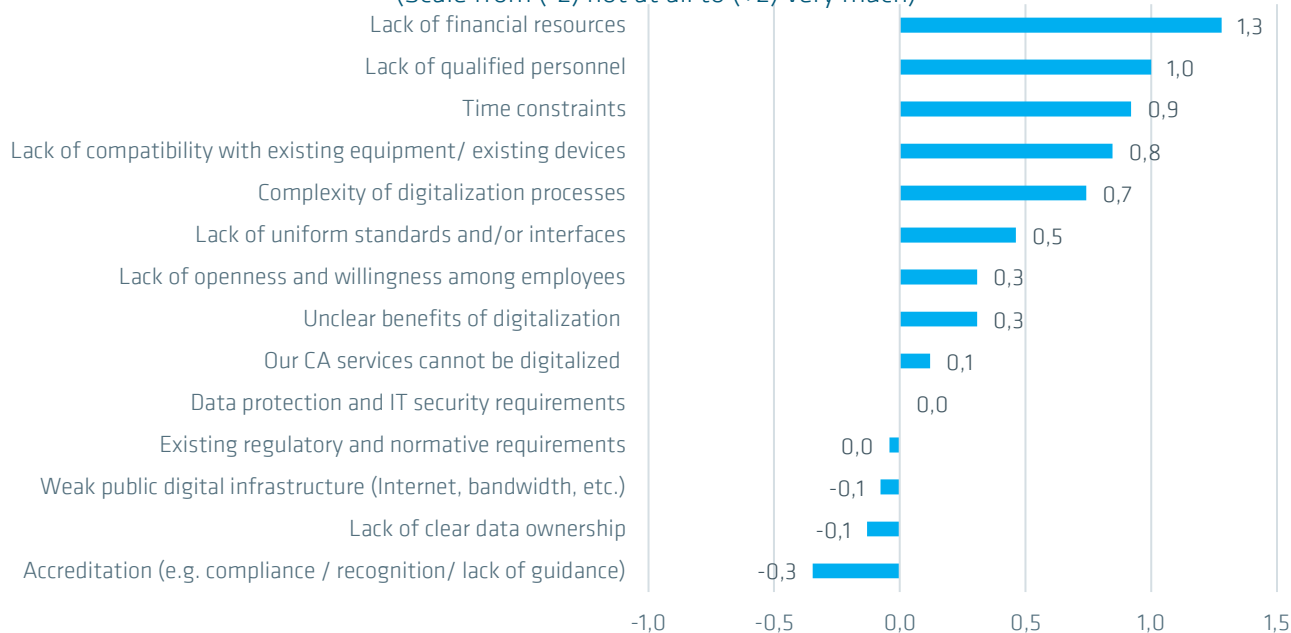


- 59% of the CABs consider their expectations behind the introduction of digital technologies to have been largely or completely fulfilled. Another 33% find them at least partially fulfilled.
- For 8% of the CABs the expectations are not fulfilled at all. Half of them are confident to still meet the expectations in the medium or long run.

Lack of financial resources and of qualified personnel BAM are the biggest hurdles to digital transformation

Hurdles to digital transformation (n=27)

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



- Lack of financial resources is the biggest hurdle for CABs, followed by the lack of qualified personnel. Also, time constraints and the lack of compatibility with existing requirements are considered major hurdles.
- The complexity of digitalization processes and the lack of standards and/or interfaces are also an issue for many CABs.
- In contrast, accreditation processes are not seen as a barrier to digital transformation.

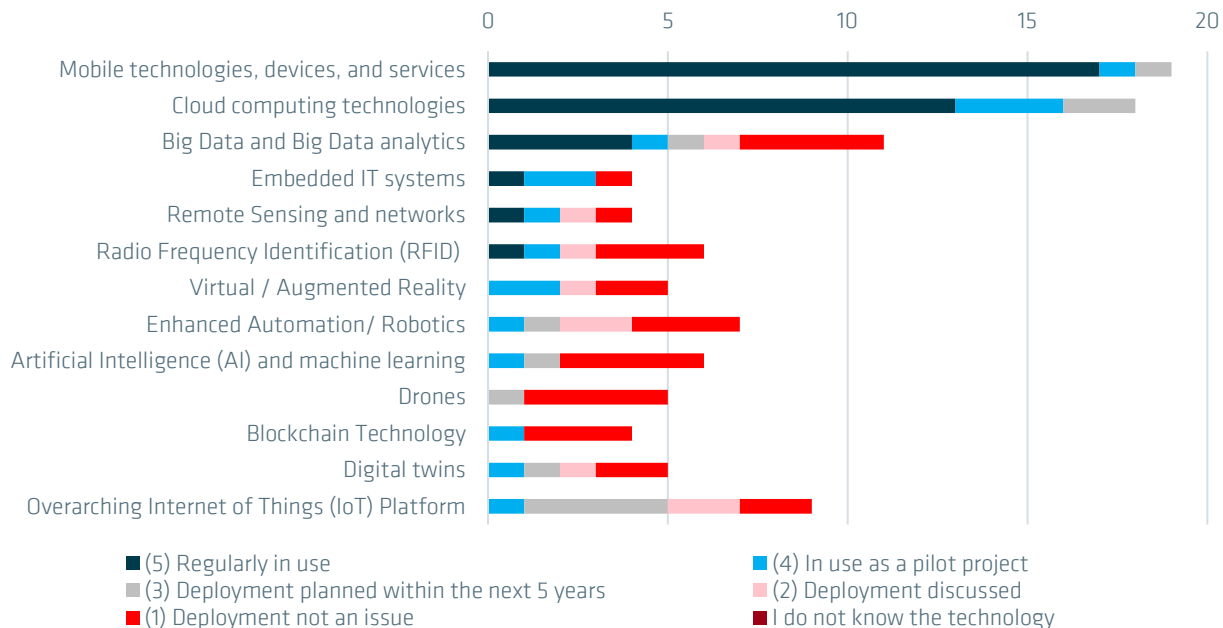
Digital Technologies and Trends

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.

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Only few latest digital technologies are used in CABs

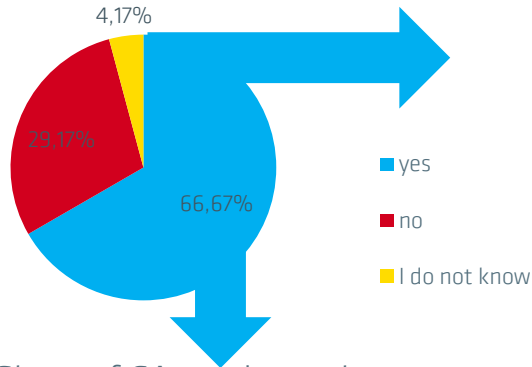
Technologies that are use or planned to be used (n=19)



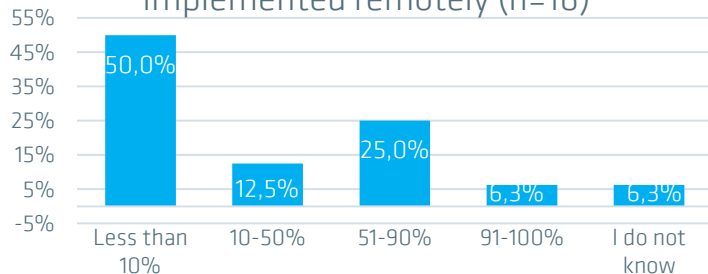
- All the latest digital technologies such as blockchain are known, however only Big Data and Big Data Analytics are regularly by CABs in Latvia. Blockchain Technologies and Digital Twins are in use as pilot projects.
- Among CABs mobile technologies are the most widely used.
- Cloud computing technologies and embedded IT systems are also used.

Remote methods and technologies are used by most CABs

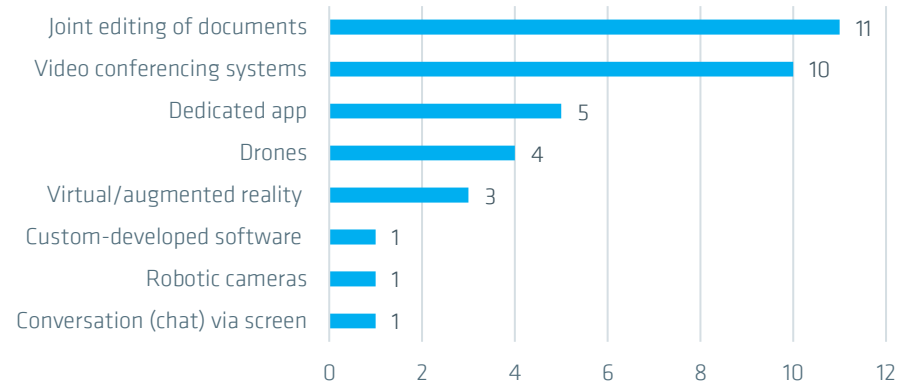
CABs that use remote methods in CA (n=24)



Share of CA services take implemented remotely (n=16)



Technologies used for remote procedures (n=16)



- 2 out of 3 CABs use **remote methods** in their CA activities.
- Among those, 1 out of 3 CABs conducts more than 50% of their work remotely. In particular, very few (6,3%) do so for almost 100% of their activities.
- Half of the CABs has not yet reached 10% of remote activities.
- Joint editing of documents and Video conferencing are the most used **tool for remote work**, robotic cameras and conversation via screen are still rarely used.

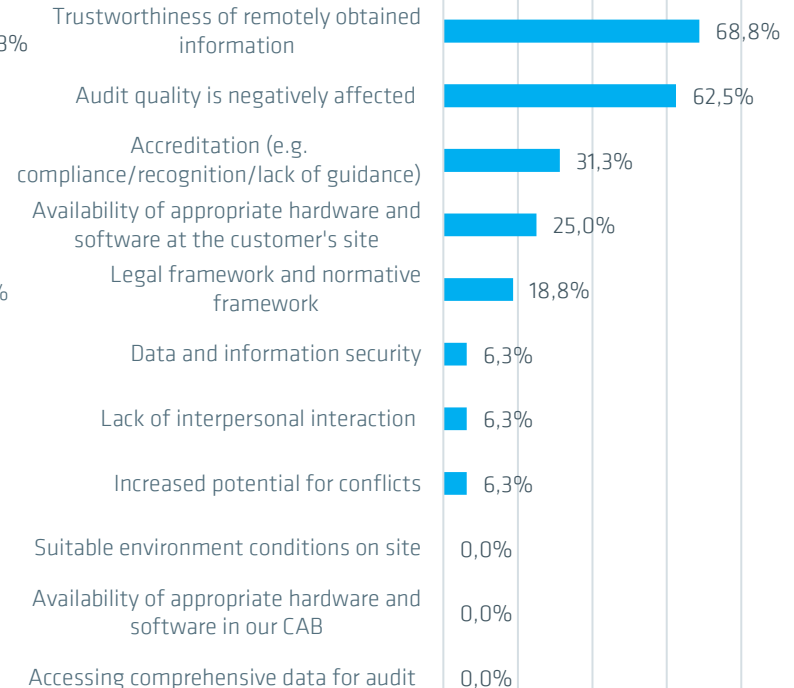
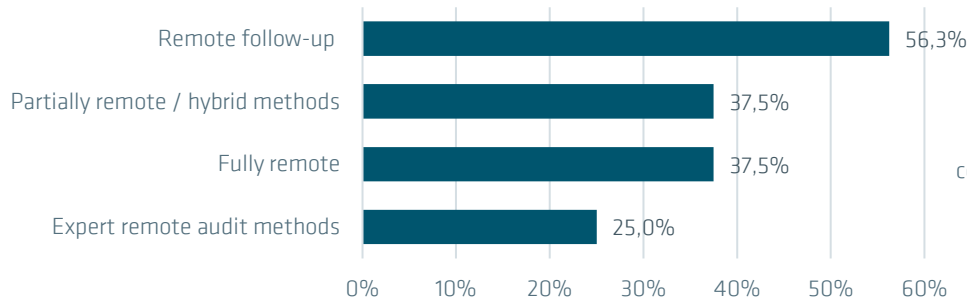
Experiencing diverse barriers in remote procedures

CABs uses remote procedures only for follow-up



Barriers (n=16)

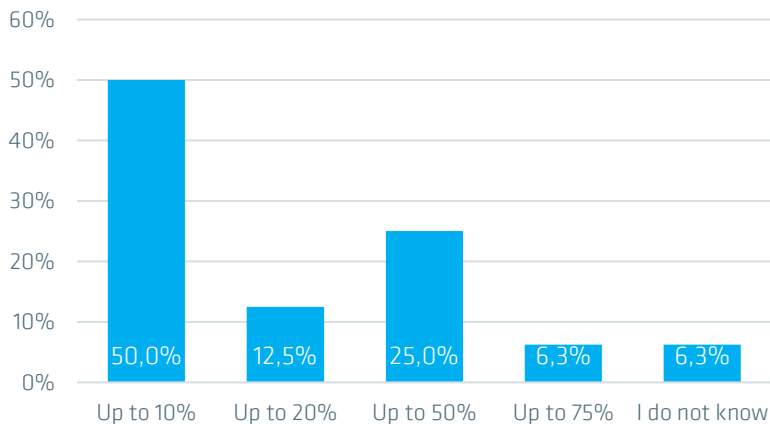
Remote procedures used (n=16)



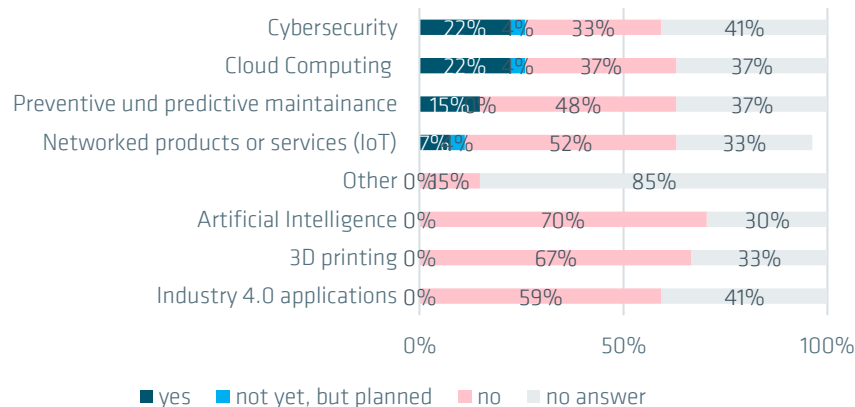
- The majority CABs in Latvia use remote procedures for remote follow-up.
- When engaging in remote activities, the lack of trust of remotely obtained information is the main **barrier** experienced. The negative impact on the audit quality is also an important identified barrier. In addition, accreditation related problems and the availability of appropriate hardware and software at the customer's side are considered relevant barriers.

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

Share of routine processes that are digital (n=16)



Digital Products and Applications for which CA is conducted (n=27)



- Only one in three CABs has digitalized more than half of its **routine processes**; almost one in two has not even transformed 10% of its processes
- 48% of the surveyed CABs conduct conformity assessments for modern digital technologies and applications. In focus: cybersecurity (22%) and cloud computing (22%)

The COVID-19 Pandemic and Digitalization

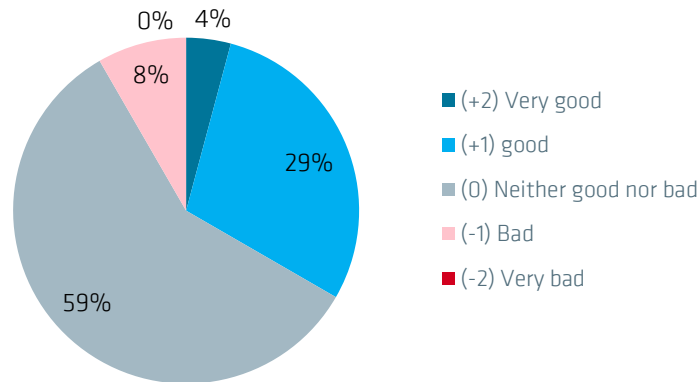
The role of digitalization in responding to the challenges posed by the COVID-19 pandemic and the impact of the pandemic on digitalization.

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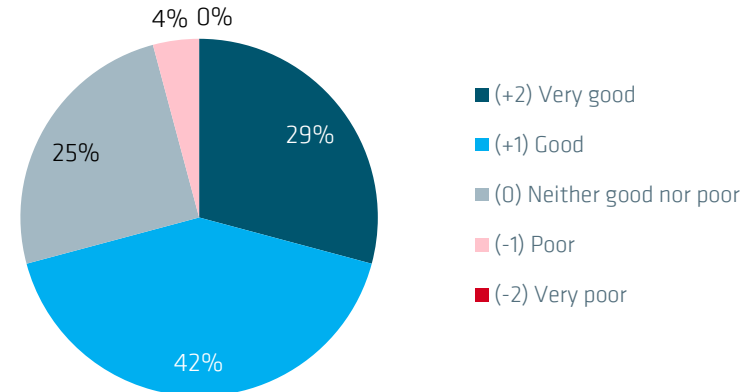
All CABs coped well with the COVID-19 pandemic



CABs' order situation in 2021 compared to pre-COVID-19 times (n=24)



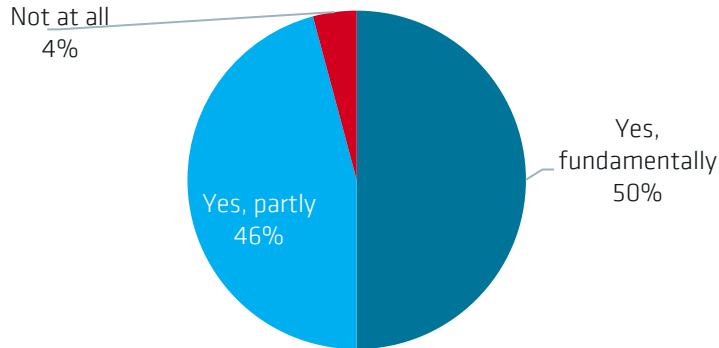
Response to the challenges of the COVID-19 pandemic (n=24)



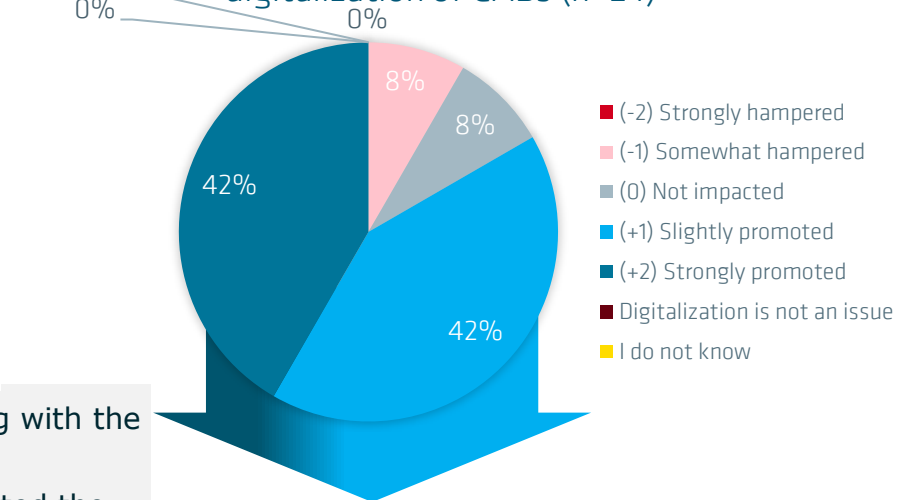
- For 59% of the CABs, the **economic situation** in terms of incoming orders in 2021 was no better or worse than before the pandemic. Only 8 % stated that their orders have declined, and 33% of CABs have actually seen their order situation improve.
- The majority of CABs (71%) reported that they have **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=24)

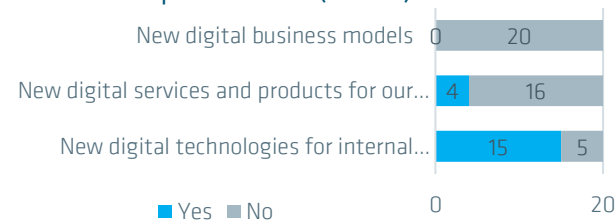


Impact of the Covid-19 pandemic on the digitalization of CABs (n=24)



- For 96% of the CABs, digital technologies have helped coping with the challenges of the COVID-19 pandemic.
- The COVID-19 pandemic has slightly or even strongly promoted the digital transformation in 84% of the CABs. Only, 8% of the CABs saw their digitalization efforts somewhat hampered and 8% reports no **impact of the pandemic on its digitalization**.
- The pandemic might have forced **digital adaptations**: 75% of CABs have introduced new digital technologies for internal processes. Only 20% introduced new digital services and products for their customers, and no CAB has adopted new digital business models.

Digital adaptation in course of the COVID-19 pandemic (n=20)



Conclusion and outlook

- CABs in Latvia clearly see digital transformation as an opportunity. The **level of digitalization** varies widely. The majority of participants has reach a medium or higher level of Digital Maturity.
- Even though digital transformation is an individual project for each organization, an initial focus on technology, customer and culture is followed by holistic organizational transformation, including strategy, change management, strong innovation networks and cooperation.
- All the **cutting-edge digital technologies** such as blockchain are known, however many of them have not yet found their way into application in CABs. Only Big Data and Big Data Analytics are regularly by few CABs in Latvia.
- With their digitalization efforts, the CABs are primarily **aiming** at optimizing processes and satisfying customers.
- Routine processes are increasingly being digitalized and there is a switch to - mostly hybrid - remote processes.

Latvia in international comparison

How do Latvian 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. Furthermore articles and an extensive report with further detailed analyses are planned.

➔ 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

The project



Project partners



Supported by



Scientific execution / authors

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

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

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

Support: Timo Kabierski



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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.

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Annexes

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Digital Maturity Model Cluster 1 (Beginner)








Description Level 1: Beginner

Dimensions

							
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 Cluster 2

Description Level 2	Dimensions						
							
We evaluate new technologies as well as changes in customer behavior to identify potential for digital innovation							
We invest in digital technologies throughout the CAB							
Our processes are already networked through IT							
Most of the interactions with our customers (e.g., advise, purchase conclusion and customer service) take place via digital channels							
We systematically and specifically analyze customer needs in order to develop appropriate digital solutions							
Digital activities are integrated into the core processes of our CAB							
We have the right people and skills for a successful digital transformation							
We work across departments and functions on the topic of digitization							



Strategy



IT & Process Digitalization



Customers



Culture & Expertise



Organization & Change Management



Innovation



Cooperation

Digital Maturity Model Cluster 3

















Description Level 3	Dimensions						
Digitalization has a central role in our overall strategy	■						
Our digital strategy is well documented and communicated	■						
We exploit the latest digital opportunities to automate routine processes		■					
Our IT department can ensure the use of digital technologies relevant to our CAB		■					
We know the most important digital technologies and that they can have an impact on CA		■					
The provision of services for customers, as well as customer care are digitally integrated and personalized			■				
Customer data is analyzed, and relevant actions are taken accordingly			■				
We promote the development of digital expertise through targeted training of its employees at all levels				■			
The understanding of the importance of digital transformation is pronounced within our CAB				■			
We accept the risk of failure in new digital activities				■			
With digitalization, we open a new source of value creation						■	
We drive digital innovations forward systematically and purposefully						■	
We use exchanges with external experts to build up additional knowledge in the area of digitalization							■
We undertake actions (e.g., workplace concepts) that support employees in collaborating effectively							■
We collaborate effectively with stakeholders on digital initiatives							■



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

Digital Maturity Model Cluster 4

Description Level 4	Dimensions						
							
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 are able to react quickly to changes in the technological or market environment					■		
The digital transformation is managed on the basis of defined roles, responsibilities and decision-making processes					■		
The goals of digitalization within the CAB are defined and measurable					■		
We have enough resources to drive digital innovation					■		
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 Cluster 5 (Expert)

Description Level 5: Expert

Dimensions



We use key metrics to measure the implementation status of its digitalization strategy

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 have an "early warning" process to identify new, relevant digital technologies or business models for us



Strategy



IT & Process Digitalization



Customers



Culture & Expertise



Organization & Change Management



Innovation



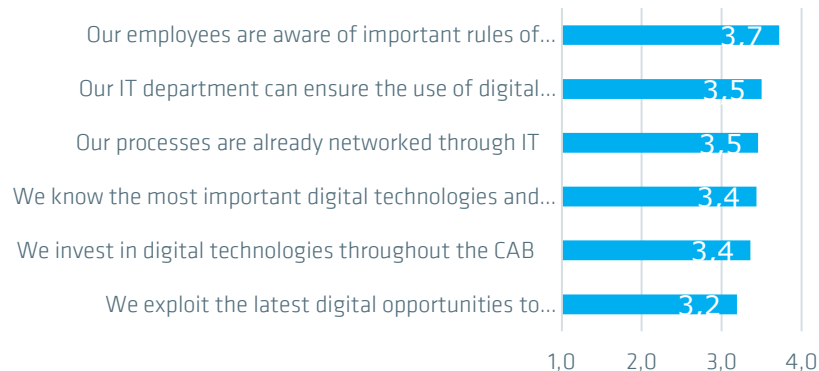
Cooperation

Dimensions of digital maturity: Detailed overview

Strategy (n=25)



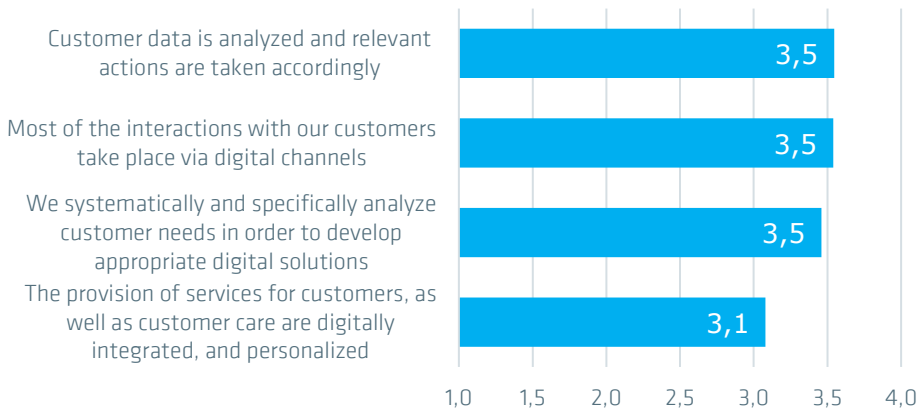
Information Technology & Process Digitalization (n=26)



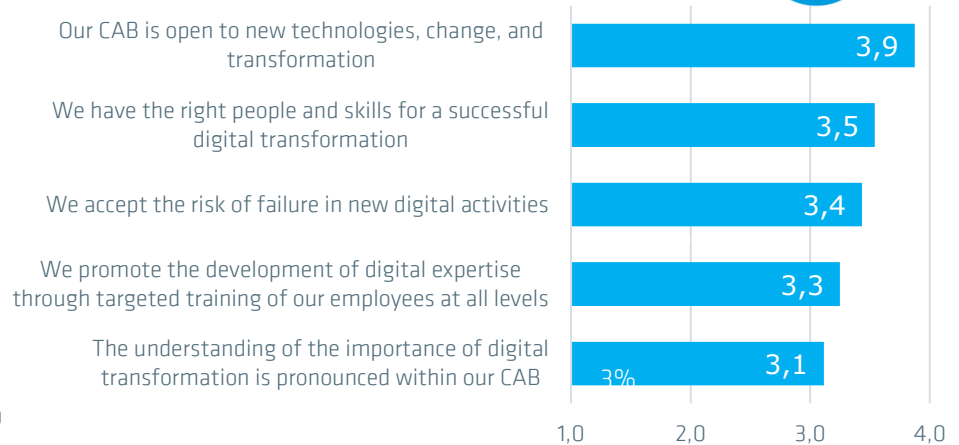
- In most CABs (72%), digitalization plays a central role in their overall strategy, with 68% having a well documented digital strategy
- Every second CAB sets up a Digital Roadmap and uses key metrics to measure the implementation status of their digitalization strategy.
- At least 70% of the CABs have an IT department to ensure the use of digital technologies - respecting IT-Security rules and have networked processes and automatized routine processes. At least 64% of CABs invest in digital technologies to automate routine processes

Dimensions of digital maturity: Detailed overview

Customers (n=26)



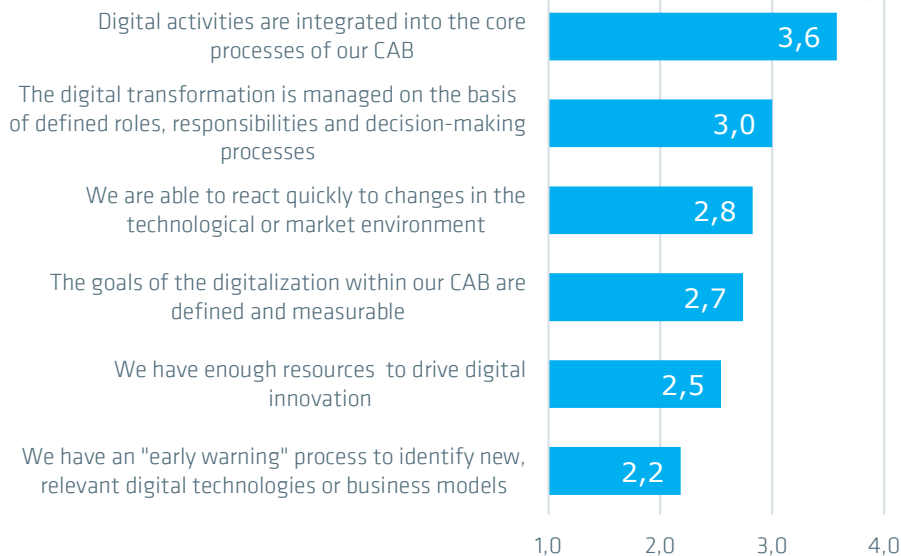
Culture & Expertise (n=26)



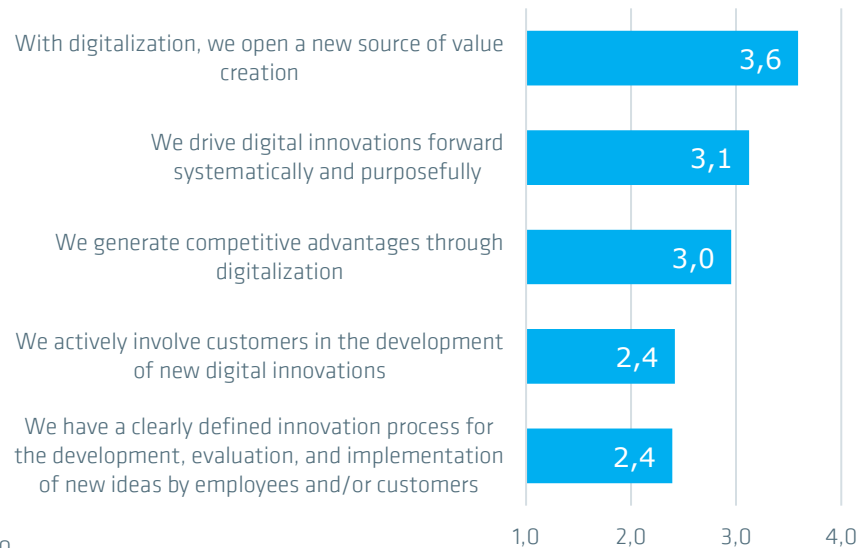
- 70% of CABs in Latvia interact with customers using digital channels and develop appropriate digital solutions based on the needs of customers. However, a lower share of CABs (62%) provides services for customers, as well as customer care, in a digitally integrated way.
- Latvian CABs are open to new technologies, change and transformation (78%, and 70% of them count with the right skills needed to successfully implement the transition. At least 62% of them have a pronounced understanding of the importance of digital transformation and

Dimensions of digital maturity: Detailed overview

Organization & Change Management (n=26)



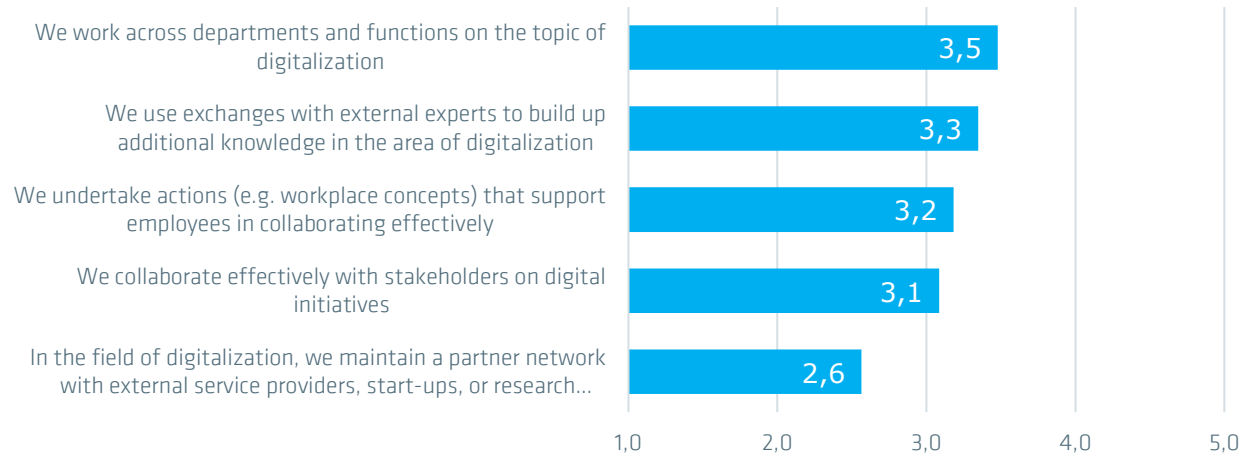
Dimension: Innovation (n=24)



- 72% of the CABs have integrated digital activities in their core processes. The clear definition of responsibility and of strategic goals are keys for implementing the digital transformation.
- For the majority of the participants (72%), digitalization represents a new source of value creation and generates competitive advantages.

Dimensions of digital maturity: Detailed overview

Cooperation (n=23)



- In addition, to work across departments and functions on the topic of digitalization (70%), two-thirds of the CABs build additional knowledge through external expert consultations. They also work effectively with stakeholders on different digital activities. Every second CAB maintains a partner network with external service providers.

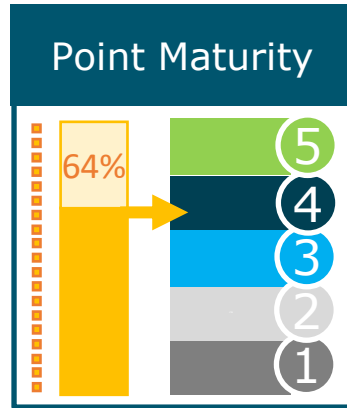
Background information: Calculation of the digital maturity level

Online Questionnaire

Self-assessment for each criterion in the 7 dimensions
On a 5-point Likert scale.
(I do not agree at all - I agree completely)

Degree of difficulty for each criterion in the dimensions

Calculation using the **Rasch algorithm**



Overall maturity

