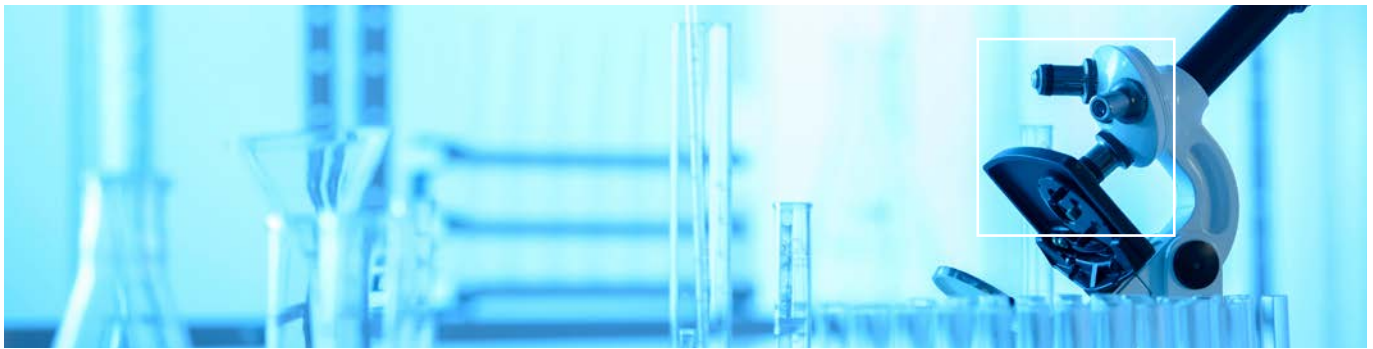


# Maximize value from quality-testing operations: Is your lab “market ready”?

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Quality testing in the food & beverage industry is business critical to ensure consistent good end-product quality and, hence, protect the corporate brand. However, despite the significant budgets spent, there is often limited clarity and transparency about the incurred costs and operational performances of global food & beverage manufacturers' testing laboratories. Typically, over 90% of routine testing lead times are “non-value adding”. Moreover, up to 20% of the staff in quality-testing laboratories could be smartly reallocated by redefining the organizational setup, refocusing activities and redefining key processes. In order to turn this untapped potential into sustainable results, business executives can address the predominantly technical environment of quality-testing operations from a business perspective. The best way to start making this happen is to shift the focus externally, towards the lab's clients and their needs.

## Quality testing: fundamental changes

A wave of significant changes has been reshaping the food & beverage industry over the past five years, forcing multinationals to deal with challenges that are more diverse than ever before. Three disruptive market trends affect the quality-testing function directly.

First, end consumers have become more concerned, educated and focused on the exact content of what they eat and drink and the impact on their personal health. This has triggered a demand for more natural products with less preservatives, colorants, sweeteners, etc. Moreover, consumers with specific allergies and “diseases of affluence” are requesting specific dietary products. This requires food & beverage firms to expand quality-testing activities rapidly into new areas and to address new demands (e.g. conducting allergen-control tests at low detection limits).

Second, technological innovation in food & beverage quality control is gaining momentum, with multiple effects on:

- Which technologies are used (with advanced testing technologies and equipment coming into play, such as advanced light microscopy, electronic scanning microscopy and nuclear magnetic resonance – NMR – spectroscopy)
- Which type and level of performance are required (in terms of testing accuracy, speed and detectability)

- How and where tests are performed (including more outsourcing to specialized independent laboratories, integrated testing throughout the value chain with instant quality tests on purchased products by end customers, etc.)

Third, the fight against deliberate contamination and adulteration triggers increasing government regulation to ensure consistency in food quality and strengthen food defense. This adds requirements that quality-testing organizations need to address.

These trends have a significant impact on how global food & beverage majors organize quality-testing activities. Moreover, quality-testing activities have long remained unaffected by cost-efficiency pressure: traditionally they were considered insurance to the corporate brand by safeguarding product quality. Nowadays, more transparency on the incurred costs and operational performance of testing laboratories is demanded, with a clear requirement for a balanced price/performance ratio.

## Labs are often seen as expensive “black boxes”

The primary objective of quality assurance and governance intuitively leads food & beverage producers to organize their quality-testing laboratories as cost centers focused on serving internal clients (production, R&D and marketing & sales).

The costs related to these laboratories are often categorized as “necessary to protect the corporate image”, offset against much greater interests than solely those of the internal clients. Most of the time the internal service is provided without smart cost allocation or a transfer-pricing mechanism, and the operational performance is often not proactively measured and improved. In synthesis, corporate management often perceives a quality-testing laboratory as an expensive black box.

This “internal cost center” mindset has direct consequences on how these quality-testing laboratories are operated, and perform:

- Without strict budgetary control and cost allocation of utmost importance or efficiency of operations as a top priority. Typically, key buying criteria of internal clients are quality and accuracy of test results. This leads the laboratory staff to focus on the technical execution of test requests without accounting for efficiency and profitability.
- With a focus on serving internal clients, and as a result they have limited interaction with end consumers. Therefore, they often have partial or delayed views on important market trends and may struggle to catch up with the pace of technology and innovation in the industry.

As a result, quality-testing laboratories of food & beverage producers are often not subject to the dynamics and pressure of competitive market economics and display certain inertia to finding optimal ways of working. This prevents them from being successful and explains the difference in their performance compared to independently run laboratory operations.

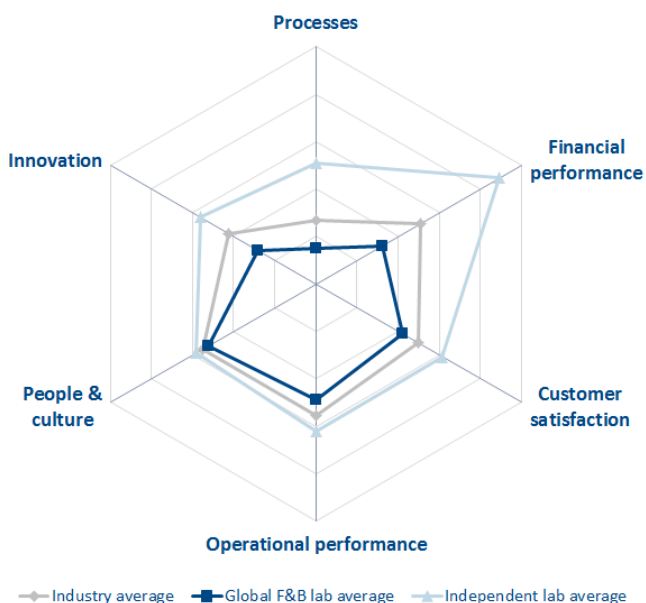
## “Market readiness”: ambition-driven performance booster

Quality-testing laboratories, which are an integral part of large industrial conglomerates, can use “market readiness” as a mechanism to boost performance on all levels. Transforming from a cost center into a profit center is a catalyst for change, irrespective of the timing and extent to which the laboratory actually provides services to external parties. The competitive landscape of these labs thus becomes radically different, as it should also benchmark with independent testing service providers – these adopt entirely different market and operating principles.

### Ambition of F&B quality-testing laboratories

	Cost Center	Market ready	Profit Center
	Internal service provider	External revenues to offset cost	Profit generator
Processes	<ul style="list-style-type: none"> <li>Core: limited accountability</li> <li>Support: Lack of transparency and rationalization</li> </ul>	<ul style="list-style-type: none"> <li>Core: defined accountability</li> <li>Support: integrated in corporate department</li> </ul>	<ul style="list-style-type: none"> <li>Core: defined accountability</li> <li>Support: Lean and integrated</li> </ul>
Financial performance	<ul style="list-style-type: none"> <li>Internal cost center with limited transparency on cost of individual test requests</li> </ul>	<ul style="list-style-type: none"> <li>Cost neutral from internal cost control; some external revenue streams from existing capabilities</li> </ul>	<ul style="list-style-type: none"> <li>Profit focus: marketing unique capabilities and smartly investing in new ones; analytical cost accounting</li> </ul>
Customer satisfaction	<ul style="list-style-type: none"> <li>Customer satisfaction not measured and/or visualized</li> </ul>	<ul style="list-style-type: none"> <li>Service-level agreements with internal clients</li> </ul>	<ul style="list-style-type: none"> <li>Customer-centric service strategy for all internal and external clients</li> </ul>
Operational performance	<ul style="list-style-type: none"> <li>No focus on operational excellence</li> </ul>	<ul style="list-style-type: none"> <li>Flexible capacity management; assigned operational excellence responsibility; elimination of non-value-adding tasks</li> </ul>	<ul style="list-style-type: none"> <li>Optimized capacity prioritization and allocation; KPI monitoring and action plan</li> </ul>
People & culture	<ul style="list-style-type: none"> <li>Lab culture based on broader corporate culture; emphasis on technical competencies</li> </ul>	<ul style="list-style-type: none"> <li>Lab culture based on corporate culture; mix of commercial and technical competencies</li> </ul>	<ul style="list-style-type: none"> <li>Specifically defined lab culture; mix of commercial and technical competencies</li> </ul>
Innovation	<ul style="list-style-type: none"> <li>Sole focus on innovation of testing capabilities</li> </ul>	<ul style="list-style-type: none"> <li>Continuous improvement of processes and development of new testing capabilities</li> </ul>	<ul style="list-style-type: none"> <li>Continuous improvement of processes and development of new testing capabilities</li> </ul>

### Arthur D. Little's performance benchmark for quality-testing laboratories



Source: Arthur D. Little's performance benchmark for quality-testing laboratories

### Comments

- The performance benchmark measures how each dimension is managed within a quality-testing lab. It illustrates the maturity level of the lab and is not an absolute performance level
- In general, global F&B labs are lagging independent labs, with main differences found in:
  - Financial performance: due to lack of KPI monitoring and financial analysis & control
  - Processes: due to lack of process accountability for workload management and other support processes
  - Innovation: due to lack of process innovation and test capability management
  - Customer satisfaction: due to lack of account management and customer service
- Global F&B labs are scoring just below their independent peers on:
  - Operational performance: due to lack of indicators on equipment & people utilization, lead time, first time right and repeat tests
  - People & culture: due to lack of employee performance indicators

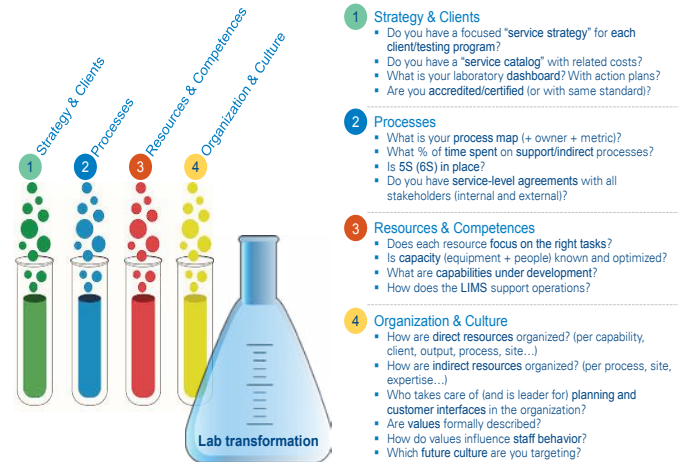
The main guidelines that companies should keep in mind while making their transitions include the following:

- Evolve from “project-based” improvement initiatives towards a structural process of continuous improvement.
- Elevate isolated local improvement initiatives to a “lab network” level, ensuring collaboration and knowledge sharing between different departments, teams and geographies.
- Make the impact of the improvement initiatives on the organization visible through tangible performance indicators.
- Put mechanisms in place fostering entrepreneurship and engagement that surpass the present organizational structure and culture beyond purely technical aspects of quality testing.

## Realizing the transformation in four dimensions

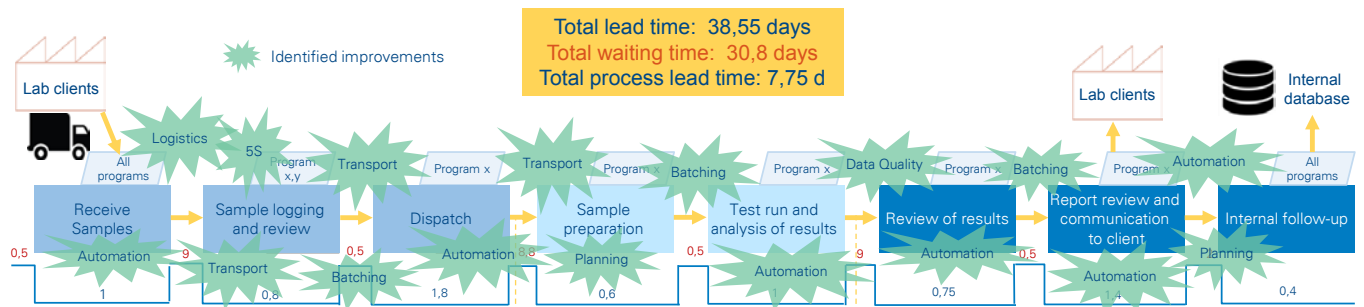
A holistic transformation covering four dimensions (strategy & clients, processes, resources & competences, organization & culture) is required to truly prepare the quality-testing organization for the next level. A diagnosis of performance in each of these areas will enable prioritization of the focus areas at hand.

Key questions on four dimensions need to be addressed for the organization to be “market ready”



A wide range of tools are available to overcome the above-mentioned hurdles and identify the right improvement areas. Although numerous successful practices can be leveraged from other areas (e.g. “lean” methodologies that originated in manufacturing environments), these tools need to be tailored to a laboratory environment. High variability of incoming test requests, the different nature of routine versus non-routine testing, and rapidly evolving technology and regulation are just a few examples characterizing the complexity of a quality-testing environment.

## Example – Value stream mapping (VSM) to improve operational performance of quality-testing labs



ISSUES PRE-ANALYTICAL PHASE		ISSUES ANALYTICAL PHASE		ISSUES POST-ANALYTICAL PHASE	
Batching	Batching of samples to maximize equipment utilization increases lead time	Batching	Batching of samples increases lead time	Data quality	Unusual results not always detected, which causes an increase in verification time of samples
5S	Mistakes in labeling causes rework	Planning	Lack of formal planning increases lead time	Automation	Redundant work in verification of results, summary report not automated
Automation	Manual tasks increase lead time	Transport	Inefficient transport increases search time	Batching	Waiting time of samples is too high
Transport	Unnecessary movement of trolleys	Automation	Manual transfer of results to LIMS	Planning	No planning of follow-up, happens ad hoc and not formalized
Logistics	Split between reception and logging activities causes redundancies				

Typical impact of value stream mapping in a quality-testing lab		Common mistakes using value stream mapping in a quality-testing lab	
Reduction in waiting time	50%-80%	Data	<ul style="list-style-type: none"> <li>Little, granular or dispersed measurement of performance indicators</li> <li>Inaccurate or irrelevant performance indicators</li> <li>Overall performance not visualized or monitored</li> </ul>
Reduction in FTEs	5%-20%	Organization	<ul style="list-style-type: none"> <li>Lack of overview due to sample flow across different teams</li> <li>No engagement to improve current processes or flows</li> </ul>
Increase in throughput	50%-80%	Resources & Capabilities	<ul style="list-style-type: none"> <li>No allocated responsibility for operational excellence</li> <li>Improvement initiatives not tailored to quality-testing context</li> </ul>
Reduction in lead time	40%-60%		

## Insight for the executive

Company leaders have multiple levers to get more value from quality management. Quality-testing laboratories in large corporations are often internally focused and struggle to find optimal ways of working in a rapidly changing environment. A fundamental change is required for these laboratories to become market ready, to include the entrepreneurial and operational excellence model characteristics of independent labs. This can provide a unique “best-of-both-worlds” position, keeping them focused on their primary missions to safeguard product quality and protect the brand, while achieving higher levels of value creation through market readiness in all performance dimensions.

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