19. Performance Monitoring: An Agile New Tool for Facilitating Sustainability in Value Chains[1]

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19.1 Introduction

Among the many organizations that invest in sustainability programs and projects, the extent of sustainability measurement is often limited to data concerning the output of the intervention itself (i.e., services provided, number of people trained, etc.). While it is beneficial to track data on investments and activities, collecting this information alone obscures a true understanding of the sustainability *performance* of those interventions within the system. Thus, providing services is hardly sufficient; it is necessary to know if those services are utilized and to what extent they are providing the intended benefits. As a solution, COSA and WDI have advanced the use of technically functional Performance Monitoring tools within diverse supply chains in developing countries in order to provide information feedback loops to management and track sustainability performance during the project lifespan.

Performance Monitoring is distinct from and yet complementary to Impact Assessment. Impact Assessment methodologies offer the actual impact and attribution using more rigorous approaches whose complexity and cost can make them less available to sustainability or value chain managers (Gertler et al. 2016). Performance Monitoring is designed to provide simple and low-cost information to guide program managers towards effective sustainability management on a regular and ongoing basis (COSA 2013; Sustainable Food Lab 2016). This is important because, as the COSA Measuring Sustainability Report (2013) states, "Impacts can take many years to evolve and manifest, sometimes making them difficult to follow and measure. In the meantime, interventions and investments continue and require ongoing direction and decision making." This is where Performance Monitoring can be most useful.

This chapter distills the benefits and key features of Performance Monitoring

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[1] Chapter in textbook: Schmidt M., Giovannucci D., Palekhov D. and Hansmann B. (Eds.) Sustainable Global Value Chains. Natural Resource Management in Transition, Vol. 2. Springer-Verlag, Berlin Heidelberg (2019).

while also presenting evidence of their broad application potential. Section 19.2 examines the benefits of implementing Performance Monitoring systems in supply chains. Section 19.3 provides an overview of how the system can be operationalized within a supply chain (indicator development, survey development, sampling methodology, and reporting). Section 19.4 details two case studies reflecting work conducted with leading global firms: Mondelēz International and Danone and exemplify the benefits and best practices of Performance Monitoring (PM) in action. Section 19.5 discusses the limitations of the system and specifies the relationship with more scientifically robust Impact Assessments.

19.2 Value and Purpose of Performance Monitoring

Effective sustainability management requires measuring progress toward goals. Well-informed value chains can substantially improve managerial ability to reduce risk, strengthen competitiveness, and ensure future supply relationships. PM systems can provide vital data for supply chain managers and other stakeholders throughout the value chain, including low-income producers or consumers. Such data not only informs management decision-making, but does so in real-time, which facilitates adaptive management. The ability to share data throughout the supply chain—including with respondents—allows for a regular dialogue to occur between multiple stakeholders in the value chain. When done well, PM utilises methods that are respectful of low-income stakeholders and enables all parties to better understand each other's needs and co-develop solutions. In smallholder agricultural value chains, PM systems can improve the effectiveness of sustainability programmes and investments that seek to improve farmer livelihoods and advance practices that protect communities and the environment.

The PM tools developed and employed by COSA and WDI offer several unique and valuable benefits:

- Accuracy for credible data that can be compared at a global scale
- Speed for real-time decision-making and learning
- Flexibility for local adaptation
- Low-cost and practical
- Respectful of respondents

Sustainability measurement is often practice-based, relying largely on compliance to checklists or standards. PM is designed to go beyond the measurement of practices only (which often obscures a true understanding of sustainability) to instead look at programme or project performance. For example, delivery of training is a common practice-based sustainability measurement—an organisation may look at the types of training delivered, number of attendees, hours or costs associated with providing training, etc. While these are important indicators of a project's internal working, they are not achievement indicators of the project itself—that is, they do not provide information on the performance of those trainings and

how (or if) they are contributing to programme success (for example, if participants are adopting practices as a result of training) (COSA 2013).

PM moves beyond practice-based measurement by using well-targeted indicators that offer punctual insights into how programs and investments are progressing towards their goals (e.g., improving business skills, increasing productivity, raising the level of engagement of young people and women, etc.) on a regular and ongoing basis. Regular and quick data flow is beneficial for any programme or investment—PM delivers data on Key Performance Indicators (KPI) to managers during the lifespan of an intervention, not at the end of the year or after the fact. By placing emphasis on real-time data analysis and integration with current business operations, PM helps avoid a static approach to sustainability and instead drives continuous improvement.

By leveraging key performance indicators for efficient data collection, PM can be low-cost to administer and is also practical and respectful of respondents. When globally standardised, the system permits learning and benchmarking across countries and projects that is critical for scaling-up the sustainability of supply chains. These qualities enable PM to generate insights that improve service delivery, effectiveness, and scalability of investments and interventions.

There is no singular way to implement PM; it is flexible in how it can be adapted to different contexts. While there are other approaches to monitoring (e.g. tracking direct data from value chain information systems) this chapter is focused on collecting PM data using surveys, as this is an optimal approach for building relationships throughout the supply chain and providing more nuanced and actionable data.

19.3 The Tool and How it Works

The PM tools developed and employed by COSA and WDI are formulated on the basis of the more in-depth scientific methods utilised in Impact Assessments that, when distilled, form an easy-to-use tool that helps managers quickly and affordably measure the performance of their programmes and investments.[2]

PM thus offers a lightweight and low-cost approach to sustainability measurement while achieving significant levels of quality and accuracy. To accomplish this, effective PM tools tend to incorporate the following attributes:

a. Customisable—tracks KPIs and mission-critical questions
b. Rapid—gathers quick, actionable data during normal field operations or at "touch points" in a manner that is respectful of respondents

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[2] Note that Performance Monitoring and Impact Assessments are complementary tools that have different functions, but can be paired for maximum results. While a comprehensive Impact Assessment can tell you if an investment or project has had its intended effect over a period of time (usually multiple years), PM allows you to capture a point-in-time picture of a project to contribute to ongoing strategic decision making for overall project success.

c. Real-time—data output on indicators is systematically integrated as feedback loops to management
d. Auditable—can be verified or paired with more in-depth research to improve the accuracy and credibility of results
e. Standardised—for internal and external entities and can be compared across countries and projects

There are three critical stages of activities for the successful execution of PM within a supply chain:

1. Select the Right Indicators to Measure

Central to the design of any PM system are the indicators, i.e., what specifically is being measured. While there may be many different sustainability indicators to choose from, we have found that the most valuable and useful indicators will meet the following criteria, which will provide global consistency (allowing the ability to audit or compare across regions) and improve the accuracy and usefulness of the work:

a. **Alignment with international norms** ensures validity and credibility. It is best practice to use indicators that have been developed through broad participatory processes and that are benchmarked to international agreements—for example, using labour indicators that have been benchmarked to the International Labour Organisation or health indicators that reflect World Health Organization standards.
b. **Follow SMART principles**—there are multiple criteria that can be used for selecting quality indicators. COSA and WDI prefer using SMART principles that suggest a useful indicator exhibits the following characteristics[3]:

   - **Specific** in definition, so that the same thing is measured in the same way across programmes and regions
   - **Measurable** with reasonable cost and effort—relying on proxies where necessary
   - **Achievable** and actionable—the indicator is practical and provides information that can inform programmes and investments
   - **Realistic**—avoiding theoretical or naïve indicators
   - **Trackable** and oriented to capture change over time, allowing enough sensitivity to show incremental and directional change

c. **Ensure a multi-dimensional framework**—sustainability necessitates balancing social, environmental, and economic factors, otherwise organisations can be at risk of missing key factors that can compromise projects, investments, and reputation (e.g., increasing productivity or returns while polluting the surround-

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[3] COSA uses the SMART principles in the design of indicators to quantify and clarify sustainability information in smallholder agricultural systems in a manner that promotes the understanding of key environmental, economic, and social issues (https://thecosa.org/what-we-do/our-approach/define-the-pathway/).

ing environment or engaging in harmful labour practices) (London 2009). When selecting which sustainability issues to measure, it can be tempting to select a long list of indicators. For PM, it is important to be selective in finalising a set of key indicators so that the tool remains simple.

2. Determining and Executing the Optimal Data Collection Approach

PM uses a flexible approach to data collection that supports the level of rigour an organisation needs. PM can thus provide credible information while maintaining flexibility to reduce costs. Key considerations for data collection include: who collects the data, where, when, and how to ensure optimal results and representativeness of the targeted programme or population.

Survey Development

Once the set of key performance indicators is defined, a simple data collection tool, such as a survey, is developed and can be administered at different points throughout the supply chain. This means that managers as well as end-users can be targeted as sources of data. PM data collection tools should be quick and lightweight so that they can be applied with minimal effort (for instance, surveys should ideally not be longer than 10-20 minutes). While surveys can always be expanded to collect additional information, keeping surveys short facilitates the ability to administer surveys regularly for ongoing insights and allows easy integration into normal business operations (Acumen 2015).

The survey questions themselves should also be straightforward and easy to answer; using closed-ended questions (e.g., multiple choice and scaled) is one way to achieve this and to also simplify data analysis. Note that surveys should also be contextualised to local conditions so that the questions are relevant to the population being surveyed. This includes adaptations for any unit conversions, specific terminology, and the inclusion of specific practices associated with an intervention. Best practice is to pre-test survey questions using cognitive interviews with individuals who are representative of the target population (Willis 2004). The cognitive interviews focus on how the respondent interprets a question and assesses whether each question in the survey is actually asking what it is supposed to measure and, based on the findings, the survey can be adapted accordingly. All of these features combine to create data collection tools that are practical and respectful of respondents—critical elements of a Lean Monitoring System (Lean Research Initiative 2015).

A note about field surveying: Data collection, especially in poorer regions is an intrinsically difficult undertaking. Various technologies have evolved in recent years to facilitate the process—many based on electronic tools such as mobile phones and tablets, which are becoming increasingly available (Acumen 2015). Digital data collection is often preferred over traditional paper surveying as it can make collecting, verifying, analysing, and sharing sustainability data quick and easy. For example, the ability to add skip logic and built-in validations to a survey reduces input errors, which increases accuracy and substantially reduces the time

required for data cleaning. These features can also make the interview process speedier and more naturally conversational between interviewers and respondents.

It is important to consider that survey software with robust offline functionality will be needed for use in difficult areas where connectivity is limited. It should also be noted that even with all the benefits of digital data collection, paper surveys may still be preferred in some cases, especially when working in dangerous areas subject to theft or when technology creates barriers between the respondent and interviewer.

Sampling Methodology

Data collection in PM systems is relatively low-cost and simple because, unlike Impact Assessments, it does not require the identification and assessment of a control group. Controls may be used for PM but are uncommon and not required. This is because the focus of PM is not on the impact of an intervention, but rather to gauge an intervention's progress towards goals over the course of its implementation. Impact Assessments use the scientifically rigorous process of identifying a control group because it acts as a counterfactual, which allows the ability to truly understand and attribute the impact of a programme or investment on a population over time (Gertler et al. 2016; COSA 2013).

PM, on the other hand, is chiefly concerned with ensuring that the sample population is representative of the target population. Because of this, there is more flexibility in the data collection approach—for example, rough field sampling, focus groups, or voluntary participants are all acceptable sampling methodologies (if representative) that can reduce costs and provide data that is of sufficient quality.[4] In smallholder agricultural settings in particular, PM has the added advantage of allowing data gathering in collective settings where farmers naturally congregate (training centres, processing stations, selling locations, etc.) instead of on individual farms where surveying for Impact Assessments typically occurs.

In order to maintain scientific rigour, surveying for Impact Assessments is generally conducted by trained third-party researchers who can provide unbiased and highly accurate data. Because PM is primarily a management tool that utilises simple data collection methods and is meant to inform operations, organisations can rely on their own staff (for example, field technicians or extension agents) instead of third party surveyors to collect data during normal operations. Staff engagement is essential, as it is assumed that PM will be conducted regularly and continuously over the course of an intervention, and staff participation helps embed the monitoring practice into daily operations.

While PM sacrifices part of the accuracy and credibility of Impact Assessments, it is designed to serve more as a knowledge management system that provides good enough information for day-to-day decision making and to manage costs across multiple projects or supply chains. While the above characteristics represent the basic PM surveying and sampling methodology, organisations can

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[4] For focus groups in particular, the approach will require some adaptation to accommodate the dynamics of a group and reduce the bias of groupthink.

always integrate more robust methodologies if they want additional credibility of results (for example, using more rigorous sampling methodologies or verification mechanisms). Such additional investments can be valuable, especially in select applications to confirm information or ensure accuracy and reliability of the results.

Box 19.1 Building Local Capacity

Applying local knowledge to the design and implementation of a monitoring system can provide superior results. It is considered best practice in doing any field monitoring or assessment work to engage a local credible institution to achieve a better scientific process that features local relevance and contextual understanding while adhering to standards for global consistency. The benefits can include:

- More reliable information
- Reduced bias in sampling strategies
- Trained local surveyors to provide quality control over time

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3. Real-time Reporting & Better Informed Decision Making

To maximise the adaptive management potential from ongoing field monitoring, data should be analysed and presented in a way that facilitates quick and easy learning. Dashboards are a good tool for presenting results on an organisation's key performance indicators that allows data to be viewed and understood right away, avoiding the lag time that is otherwise inherent in typical reports from the field. Integrated technology solutions (software that combines data collection, storage, analysis, and presentation capabilities) greatly facilitate this rapid flow of information. This allows managers to easily integrate learning from the field into their day-to-day operations.

Digital Dashboards (Figure 19.1) greatly facilitate the quick and effective sharing of data among project partners. With key partners involved, overall accountability (and transparency) can be greatly enhanced. Visual results also contribute to better learning and active participation of all stakeholders involved in a project.

Beyond presenting results on an organisation's key performance indicators, dashboards can also be useful for providing information on the process being conducted in the field (trainings conducted, time spent administering surveys, number of surveys completed, location, etc.), which allows managers the opportunity for a real-time quality control of field staff and the data.
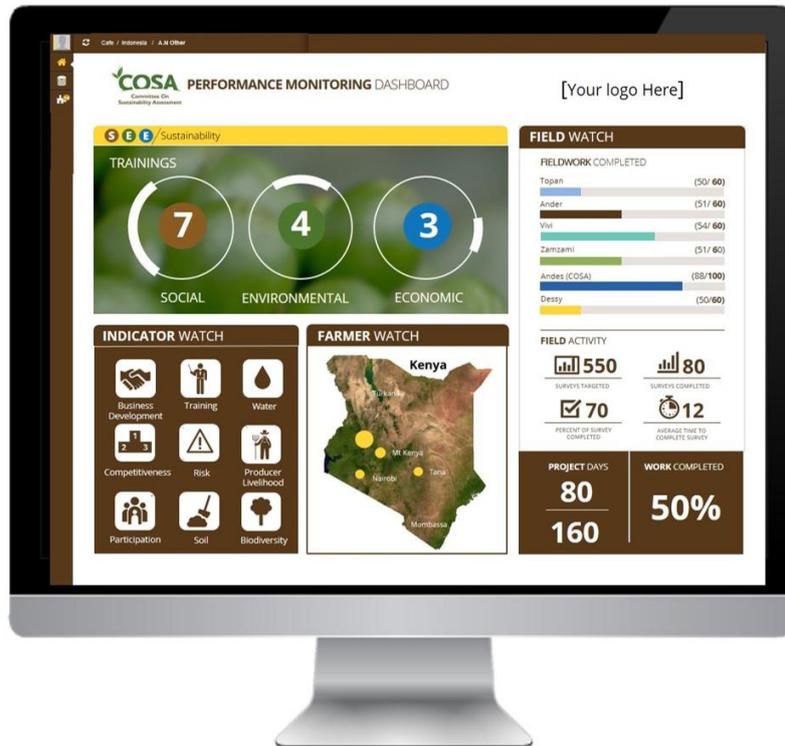
Fig. 19.1 Example of Digital Dashboard

19.4 Case Studies

19.4.1 Mondelēz International and the Committee on Sustainability Assessment

In 2012, the multi-national company Mondelēz International launched a $200 million plan with the goal of empowering one million coffee entrepreneurs by the year 2020. The investment was designed to make "coffee farming more profitable, sustainable and respected" for the mostly small farmers in their global value chains. The initiative involved funding appropriate programmes such as agronomic, business skill, environmental protection, and social training programmes. These activities were delivered through supply chain partners to maximise efficiency. The Committee on Sustainability Assessment (COSA)[5] helped Mondelēz

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[5] COSA (https://thecosa.org) is a non-profit and independent, global consortium of partners dedicated to accelerating agricultural sustainability through robust information

to design appropriate metrics along with other partners. COSA then created an integrated system for Monitoring and Evaluation to effectively understand the economic, social, and environmental outcomes of the programme with sound scientific rigor. The informed management system started with a baseline of the farming systems in select countries and then a tailored PM was used to track ongoing progress of each project toward the overarching objectives. The PM focused on six projects across three continents. It was designed by COSA to be globally comparable so that managers could quickly see the results they were getting and either alter or scale up efforts as learning occurred.

COSA led the formulation of the indicators about Profitability, Sustainability, and Respect for coffee farming as a profession using a consensus-building process of multi-stakeholder conversations. This process centred on balancing multiple competing priorities while still reflecting the core attributes of a good lean monitoring system. In this context, the process was designed with the following attributes in mind:

1. **Relevance:** The indicators chosen by the multi-stakeholder group represented practical ways to monitor progress toward the high-level objectives and were identified by mapping the key issues that the organisation faced and setting priorities. Mapping and prioritisation are necessary strategic precursors to picking the right indicators.
2. **Balanced perspectives:** Participants in the indicator formulation-discussions included representatives from Mondelēz as well as several NGOs. Indicators were selected to balance multiple dimensions of sustainability—environmental responsibility, farm economics, social conditions, and perceptions—which offered a more holistic understanding of progress and challenges.
3. **Pragmatism:** the PM questionnaires were designed to be unambiguous and easy to answer. They were right-sized for the objective, taking roughly 12-30 minutes to answer.
4. **Comparability:** Although each survey was customised for relevance to the area, project, farm conditions, and language, the responses from the surveys neatly fed a common set of global indicators and could be readily compared to the baseline findings that used the same indicators.

To keep costs low, the technicians from the local organisations were trained to administer the surveys to a representative sample of farmers in each supply chain. The surveys relied on farmer recall and were largely conducted in collective settings using appropriate methods. The simplicity of the system and the COSA technology allowed rapid data results to be presented on individual project dashboards. This allowed managers to observe programme performance and to provide relevant feedback in a timely manner. The transparency was unprecedented because supply chain partners and other stakeholders had access to these programme dashboards that tracked the intervention's key performance indicators. This allowed stakeholders to see and participate in the reporting, opened an unparalleled

ability to collaborate, and improved accountability all around. Managers reported an increased understanding and expected to improve the efficiency and the effectiveness of field operations.

PM quickly revealed some of the strengths and weaknesses in the programme. It also provided clarity about the areas to target that had the greatest potential for future positive impact. The framework established with local partners allowed continual observation of key sustainability issues in the system that previously could take years to observe including:

1. Practice adoption as a result of training
2. Productivity in light of environmental and efficiency indicators to ensure that increased production is profitable for the farmer and does not come at the expense of the environment
3. Participation of women to ensure programmes remain on target for achieving their goals

The comprehensive data management system not only helped track progress toward their 2020 goals, but was also intended to give decision makers an effective and holistic understanding of the return on the investments (ROI). This effort was continued when Mondelēz was merged into Jacobs Douwe Egberts (JDE) until its results were integrated. Perhaps one of the best hallmarks of effectiveness has been the continued use of this PM model by project implementers. A major coffee exporter that gathers 14,000 farmers in Honduras, Honducafe, appreciated the functionality and the useful management information enough that they have applied their own funds to continue to utilise the PM system for gathering data across their thousands of producers. Ultimately, this was a novel and very welcome achievement of the Mondelēz – JDE initiative that demonstrated how smart data can indeed contribute to farming success and sustainability.

19.4.2 Danone Ecosystem Fund and the William Davidson Institute at the University of Michigan

Employing low-income individuals in emerging markets brings unique challenges that require businesses to adapt. One such project, Semilla, has a mission to improve the well-being of its employees through formal sector employment and training, but at the same time it faces issues of employee turnover, low sales and difficulty in the measurement of its impact (Danone Ecosystem Fund).

The project was developed by Danone Mexico and its local partners, Ashoka and CAUCE with funding support from the Paris-based Danone Ecosystem Fund. Semilla employs individuals to sell Danone products door-to-door. These salespersons meet at micro-depots located across the city in the morning to load their carts before selling on assigned routes. At the end of the work day, the salespersons return to the micro-depot to report their sales with their supervisor. Salespersons receive training on life skills and sales, as well as benefits such as access to childcare, healthcare, and a housing fund.

The William Davidson Institute at the University of Michigan (WDI) partnered with Danone Ecosystem Fund to develop and conduct a study on Semilla's impact on its salespersons (WDI 2015). The results of the impact assessment provided data-driven solutions to meet some of the venture's challenges. Additionally, the in-depth impact assessment study identified priority indicators for Semilla to continue to track through PM to regularly inform decision-making. These indicators include individual economic stability, self-efficacy, and pride in working for Semilla. These indicators were selected as they represent three different areas of well-being: economic, capability and relationship. The study also found that these variables were associated with retention, hence regular monitoring can inform key decisions related to improving retention. Additionally, pride in working for Semilla was also associated with sales, thus tracking it can inform key decisions related to improving sales. For example, to further improve retention and sales, Semilla may decide to focus training material more on improving self-efficacy and pride for Semilla, and through regular collection of the priority indicators they can track whether the relationship between the variables and sales and retention continues to hold or levels out and then allocate resources accordingly.

These priority indicators could be integrated into a Management Information System (MIS) with basic demographic characteristics of Semilla workers, training information, and weekly performance data such as quantity of sales and salary. Systemically collecting such data using a Management Information System (MIS) that is tightly integrated with the day-to-day operations of the company would afford Semilla the opportunity to conduct real-time and nearly instantaneous analyses of factors affecting employee performance and retention. Additionally, the impact of changes in company practice and policy could be assessed using historical employee performance data.

19.5 Limitations of Performance Monitoring

While PM gives managers rapid insights into the performance of their programmes and investments, its application has some limitations that are worth reiterating. PM is not designed to evaluate programme impacts. Impact Assessments have more robust methodologies and are better suited to indicate whether an investment or project has had its intended effect over a period of time (usually multiple years). Impact Assessments use scientific methods to provide insight into an investment's intended and unintended effects (both positive and negative) through conducting rigorous baseline and endline evaluations with a target group and a control group. This information can be used to inform practical solutions to sustainability challenges and more effective investments or policies.

In contrast, PM captures ongoing pictures of a project and provides decision-makers with regular and timely information to ensure that projects and investments are progressing as planned and that any obstacles to success are identified immediately. Although PM can be used as a stand-alone tool, it is ideally paired with Impact Assessments for a more comprehensive and multidimensional under-

standing of the sustainability of a programme or investment (Giovannucci, von Hagen, Wozniak 2013).

Performance Monitoring can be made more robust through more rigorous sampling or surveying methodologies. This could include using third party or professional surveyors, selecting a control group for comparison, etc. While valuable, this can increase time and resource costs. Regardless, when PM is aligned with Impact Assessments it can serve as a credible signpost for the expected Impact Pathways facilitating sharper and likely more accurate decision-making.

19.6 Conclusion

Performance Monitoring is a solution designed to help managers make decisions in real-time about the sustainability investments and programs in their supply chains. The objective is improved results. The PM tool is designed to be simple, low-cost to administer, and flexible to account for a range of conditions and available resources. Both COSA and WDI continue to evolve their Performance Monitoring tools in order to create functional systems that work across diverse supply chains and contexts in developing countries.

The chapter highlights best practices in indicator development, survey development, sampling methodologies, and reporting as a foundation for successfully implementing PM across regions or supply chains. The case studies provide examples of two distinct applications of the system and key aspects relating to their success. Performance Monitoring remains one part of understanding the impact pathway—when Performance Monitoring is coupled with Impact Assessments, strategic long-term objectives are met with tactical short-term decision-making to help projects remain on course to reach their goals and have their desired impacts over time.

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