mAgri Design Toolkit
User-centered design for mobile agriculture

MAINTAIN
The GSMA represents the interests of mobile operators worldwide, uniting nearly 800 operators with more than 250 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and Internet companies, as well as organizations in adjacent industry sectors. The GSMA also produces industry-leading events such as Mobile World Congress, Mobile World Congress Shanghai, and the Mobile 360 Series conferences.

For more information, please visit the GSMA corporate website at www.gsma.com. Follow the GSMA on Twitter: @GSMA.

GSMA’s mAgri Program catalyzes scalable, commercial mobile services that improve the productivity and incomes of smallholder farmers and benefit the agriculture sector in emerging markets. The mAgri Program is in a unique position to bring together mobile operators, the agricultural organizations and the development community to foster sustainable and scalable mobile services that improve the livelihoods of smallholder farmers. This report is part of the mNutrition initiative, launched by the GSMA in 2014 in partnership with the UK Government’s Department for International Development (DFID).

For more information, please visit the GSMA M4D website at http://www.gsma.com/mobilefordevelopment. Follow us on Twitter: @GSMAm4d

frog is a global design and strategy firm. We transform businesses at scale by creating systems of brand, product and service that deliver a distinctly better experience. We strive to touch hearts and move markets. Our passion is to transform ideas into realities. We partner with clients to anticipate the future, evolve organizations and advance the human experience.


For more information, please visit the frog website at www.frogdesign.com. Follow frog on Twitter: @frogdesign.
The mAgri Design Toolkit is a collection of instructions, tools, and stories to help develop mobile agriculture products by applying a user-centered design approach.

The mAgri Design Toolkit is one of the outcomes of a two-year initiative led by the GSMA mAgri Program. From 2014 GSMA worked closely with six mobile network operators (MNOs) — Airtel Malawi, Dialog Sri Lanka, Grameenphone in Bangladesh, Ooredoo Myanmar, Telenor Pakistan, and Vodafone Ghana — to develop and launch life-changing mobile agriculture services.

The MNO-led services target smallholder farmers with a focus on providing agriculture information and advisory services, as well as nutrition-sensitive agricultural information and tips, and in some cases mobile financial services.

The GSMA mAgri Program partnered with frog to bring the user-centered design approach into the product development process, to better connect the mAgri services with the needs of farmers and other key actors in the ecosystem. frog has been coaching UX experts within each of the MNOs, working closely with them to establish and practice user-centered design methods tailored to the mobile agriculture context and needs. All the tools provided as part of the mAgri Design Toolkit have been tested, proven, and refined multiple times on the ground before being included in this collection.

The design toolkit is intended as an instrument to provide operational guidance to the development and implementation of mAgri services. Designing services around the needs of the rural user is critical to the success of mAgri services. Besides service design, MNOs and value-added-services (VAS) providers must form partnerships with ecosystem players, including agriculture content providers. They must also identify the best-suited technology delivery channels for their target markets, and then implement viable marketing strategies, including both above-the-line (ATL) and below-the-line (BTL) marketing. All of these elements are intertwined with user design and are critical to a viable and sustainable mAgri business model.

Please see the appendix for the suggested GSMA resources that should be used alongside this toolkit.
User-centered design helps MNOs and VAS providers to understand what farmers really need, thereby increasing the chances of launching successful mAgri services.

Many mAgri services that have launched in emerging markets have suffered from low user adoption, despite coming from leading mobile network operators and value-added service (VAS) providers.

The rural segment is highly price sensitive, requiring service providers to consider highly competitive pricing and freemium models. Reaching scale is therefore critical in order to derive commercial benefits.

Tackling these challenges can be daunting for any service provider, but the size of the agricultural sector and the number of people who rely on farming for their livelihood in emerging markets, means that service providers can’t ignore the opportunity to deliver services to this largely under-served segment. GSMA mAgri estimates the labor force in agriculture to be 552 million, and agricultural workers with a mobile phone to be close to 200 million in Sub-Saharan Africa and South Asia in 2015.

I feel adopting a user-centered design process is a must when you develop mobile products for a segment such as farmers. It gave me the confidence that we have got the basic elements of the product right in order for it to be accepted by the users. We are continuously sharing our learning with fellow product teams in Dialog to help them understand the user better.

Inas Jenabdeen, product manager, Dialog
WHY IT IS IMPORTANT

The work that frog Design has been doing to support key actors to design products and services for smallholder farmers is really revolutionary and has certainly changed the way I think about serving the rural poor, even after 20 years of experience. Frog’s meaningful and compelling client-centric insights are helping field staff, management and boards of directors to design for and meet the needs of smallholders, making sense of how technology can have a human face and be impactful, while being sustainable.

Leesa Shrader, Agrifin Accelerate program director, Mercy Corps

The user-centered design approach helps mAgri service providers get a much better understanding of this customer segment and their ecosystem, and then design appropriate products and services that meet the real needs and challenges of the customer. This approach is not typically followed by many MNOs or VAS providers, which has resulted in several poorly designed products that do not meet the demand and have gained little traction with farmers.

The user-centered design approach puts farmers and their experience at the center of the product and service design, and is grounded on a continuous and structured interaction with end users. This approach helps to translate the solid understanding of users who are into a product and value proposition, and ensures that all aspects of the service — from the overall experience to each detailed feature — are verified with target users.

While exploring a complex value chain like agriculture, we believe that the GSMA mAgri Toolkit can effectively translate user-centered design into sustainable social impact.

Muhammad Farooq Shaikh, director digital services, Telenor Pakistan

By integrating a deep understanding of the user when designing or adapting an mAgri product, service providers can drive successful innovation in the mAgri sector and generate services that can be commercialized faster and become more widely adopted.
HOW IT WORKS

The mAgri Design Toolkit displays a process together with a set of methods and tools to integrate user-centered design at any stage of the product development cycle.

The mAgri user-centered design process focuses on engaging the farmer at any stage of the product development, from the early moment of identifying the opportunities and generating concepts, to the advanced stages of product realization, execution, and scaling.

We can distinguish five moments in the user-centered design process, and map those against specific phases of the product development cycle.

1) The plan, learn, and create steps focus on building a foundational understanding of farmers and their ecosystem, preparing the team for field research (plan), gathering insights from users (learn), and transforming the data collected into opportunities and service ideas (create). The create step represents the transition from concept development to realization, dictating design and strategic decisions.

2) The develop stage looks at ways to extend the interaction with users during concept realization by providing tools and methods that allow the team to continuously evaluate the service idea, value proposition, and detailed features. The feedback collected is then used as input to refine the product execution and strategies.

3) After launch, the maintain phase evolves the tools and methods used during product realization to look at new design iterations and extensions of the product based on the actual user experience. The maintain phase also loops back into the planning phase, setting the stage for new cycles of research and idea generation.

It is important to note that this mAgri Design Toolkit does not cover other aspects that are critical to making an mAgri product successful (e.g., getting C-level buy-in). Please see the appendix for the suggested GSMA resources that should be used alongside this toolkit.
To apply a user-centered process, you need to first align on team setup, existing knowledge, and assumptions. Discuss the overall goal for your mAgri service and how to set up user research to ensure that farmers’ voices and their ecosystem are integrated into the mAgri service.

To create meaningful products, you need to be closer to user, market, and context of use. This understanding starts with going out in the field, asking the right questions, and testing hypotheses with farmers to guide you throughout the design process.

To develop a mAgri concept that is deeply rooted in insights captured in the field, you need to analyze the information collected, and identify the right opportunities for your mAgri service, considering all the diverse voices of the farmers and their ecosystem.

To shift from concept to realization, you need to prioritize features and plan how to create value, deliver, and capture it over time. While the product starts to take shape, organize additional validation sessions with the user to make sure you are going in the right direction.

The launch is only the beginning of the journey, not the goal. When the product launches, you need to continuously gather feedback from farmers and the ecosystem to refine and improve the product, looking at all the aspects that shape the final user experience.
# Tools

## Preparation
- Organization Readiness
- Team Setup
- Collaboration Tools

## Activities
- Success Criteria
- Mission Countdown
- Hypothesis Generation
- Ecosystem Mapping

- Discussion Guide
- Note-Taking Template
- In-Depth Interview
- Farming Life Cycle
- Trust Circle
- House-Farm Tour
- Intercept Interview

- User Archetypes
- Life Cycle Mapping
- Ideation Exercises
- Customer Journey

- User Validation Plan
- Card Sorting
- Low-Fidelity Prototypes

## Outcomes
- Recruiting Criteria
- Research Plan
- Research Insights
- Refined Hypotheses
- Value Proposition
- Service Blueprint
- Minimum Viable Product
- Advocate & Skeptics Map
- Business Model

- Content Considerations
- Agent Training
- Go-to-Market Strategy

- Monitoring Plan
- Customer Journey Issues
- Product Iterative Planning
How the Design Toolkit can help you come up with a new service idea.

If you have not yet developed an mAgri service, or the product you have in the market has not been successful, the user-centered design process can help build a deep understanding of farmers and the complex system of cultural, societal, financial dynamics they are part of. The learnings collected in the field become the foundation for your team to generate ideas for new mAgri services or to redesign the existing ones, giving the opportunity to always verify any design or strategic decisions against user insights.

**RECOMMENDED TOOLS:**
- Organization Readiness, Success Criteria,
- Ecosystem Mapping, Recruiting Criteria,
- Research Plan, Discussion Guide, In-Depth Interview, Intercept Interview, Research Insights,
- User Archetypes, Customer Journey, Value Proposition, Minimum Viable Product

How the Design Toolkit can help refine the product you are developing.

If you are developing a new mAgri service and you are unsure how it will be perceived in the market and generate adoption, the user-centered design process can help verify and adjust the product design and strategy before launch. You can test the mAgri service idea by creating rough prototypes of the service, evaluating the value proposition and prioritizing certain features with farmers, assessing the distribution strategy with all the actors in the ecosystem, and integrating your lessons into the product development process.

**RECOMMENDED TOOLS:**
- Ecosystem Mapping, Recruiting Criteria,
- User Validation Plan, Discussion Guide,
- In-Depth Interview, Card Sorting, Low-Fidelity Prototypes, Trust Circle, Farming Life Cycle,
- Content Planning, Agent Training, Go-To-Market Strategy, Customer Journey Issues
Following a user-centered design approach does not guarantee a successful product; other factors need to be in place to get the desired outcome.

It is important to consider these factors when you adopt a user-centred design approach for your mAgri service:

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<tr>
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<tbody>
<tr>
<td><strong>INTERNAL BUY-IN</strong></td>
<td>Make sure you have the buy-in and support from the right people in your organization. mAgri products that don’t have C-level visibility and support often struggle.</td>
<td><strong>MARKET SIZE ASSESSMENT AND BUSINESS CASE</strong></td>
<td>Conduct a market sizing assessment and develop a business case for your mAgri service. This will be critical to get C-level and organizational buy-in.</td>
<td><strong>BUDGET</strong></td>
</tr>
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</table>
How to read the toolkit:

**SECTION COVER**

Each section opens with a description of the product development phase and a summary of the tools suggested for preparation, activities, and outcomes of the phase.

**TOOL DESCRIPTION & INSTRUCTIONS**

Each tool is described with indication of time, materials, complexity, and resources needs (on the left side) and detailed instructions (on the right side).

**STORIES FROM THE FIELD**

Some of the tools include real stories from the field that help put a specific tool into context and provide additional suggestions on how to apply it.

**TOOL TEMPLATE**

When needed, a blank worksheet or template is also provided: you can easily print out the worksheets you need and start practicing!
THE LAUNCH IS ONLY THE BEGINNING OF THE JOURNEY, NOT THE GOAL. WHEN THE PRODUCT LAUNCHES, CONTINUOUSLY GATHER FEEDBACK FROM FARMERS AND THE ECOSYSTEM TO REFINE AND IMPROVE THE PRODUCT, LOOKING AT ALL THE ASPECTS THAT SHAPE THE FINAL USER EXPERIENCE.

PREPARATION
Plan a monitoring strategy to gather feedback after launch

ACTIVITIES
Look at the entire experience and what needs to be refined

OUTCOMES
Define stages for product refinement and upgrade
SET UP A MONITORING PLAN TO UNDERSTAND WHETHER THE PRODUCT IS ACHIEVING ITS GOALS, OR HOW IT NEEDS TO BE CHANGED IN ORDER TO DO SO.

**TIME**
60 minutes working session

**MATERIALS**
- Worksheet
- Pens

**COMPLEXITY**
Medium: good analytical and planning skills

**ROLES**
- Project manager
- UX lead
- Technology
- Marketing
- Content
DEFINE MONITORING AREAS
Review all the different areas of the customer journey that are important to analyze in order to improve on the mAgri service going forward. Feel free to use the monitoring areas provided in the next pages as well as add some additional ones specific to your service. Make sure that the monitoring plan covers the whole customer journey.

PRIORITIZE MOST IMPORTANT AREAS
Out of all the monitoring areas, select up to 10 as priorities. For each one, define how to measure it (describe the methodology and participant) and how often (frequency of measurement).

IMPLEMENT DATA COLLECTION
Based on the complete list of monitoring areas and strategies for measurement, discuss with your analytics and UX teams how to embed these metrics in the launched service.

REVIEW PRIORITIES
On a monthly or quarterly basis, review the monitoring areas to identify top ones that need to be addressed. When the time for the planned evaluation is over (e.g., end of quarter), review the set of 10 areas again to see if they need to be refreshed.
## Monitoring Plan: Priority Areas

Use the following areas as a starting point for prioritization:

<table>
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<tr>
<th>WE NEED TO KNOW WHETHER...</th>
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<tr>
<td>...the value proposition of the mAgri service resonates with farmers</td>
<td>...the marketing efforts are reaching the target audience</td>
<td>...the mAgri service impacted or mattered to farmers</td>
<td>...farmers trust the service</td>
<td>...the mAgri service conflicts with any cultural norms</td>
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<td>...farmers know how to stop the subscription and feel in control</td>
<td>...farmers are facing any connectivity issues with the service</td>
<td>...the Unstructured Supplementary Service Data (USSD) menu is easy to navigate</td>
<td>...farmers remember the mAgri service number</td>
<td>...farmers can easily find help with the service when they need it</td>
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<td>...farmers are using the service properly</td>
<td>...the service is using the right channel across the entire customer journey</td>
<td>...the pricing model is right</td>
<td>...farmers think that the information arrives at the right time</td>
<td>...farmers think that the information is actionable</td>
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<td>...farmers think the information they receive is something they didn’t know before</td>
<td>...farmers think the content’s tone is appropriate</td>
<td>...the given recommendations are affordable for farmers</td>
<td>...farmers think the content is accurate and up to date</td>
<td>...farmers listen to the full messages</td>
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<td>WE NEED TO KNOW WHETHER...</td>
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<td>...the registration process is easy for the farmers</td>
<td>...some farmers don’t use the service after registration</td>
<td>...farmers unsubscribe from the service</td>
<td>...farmers are able to self-register</td>
<td>...agents feel incentivized to sell the mAgri service</td>
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<td>WE NEED TO KNOW WHETHER...</td>
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<tr>
<td>...agents are registering farmers properly</td>
<td>...agents are helping farmers beyond just registration</td>
<td>...the other key ecosystem players (e.g., middlemen, input dealers) are supportive of the mAgri service</td>
<td>...women are using the service</td>
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</table>

**Monitoring Plan: Priority Areas**

Use the following areas as a starting point for prioritization.
MONITORING PLAN WORKSHEET
Discuss how to monitor the selected areas

01 METRICS TO MEASURE

What are you investigating?

02 CHANNELS

- Business intelligence (internal)
- Interviews with marketing agents
- Other
- Phone surveys
- Registration data
- Embedded into mAgrisi service design
- Interviews with farmers

03 METHODS FOR DATA COLLECTION

E.g., list questions you would ask
Data and insights about the product should show areas where customers are dropping off the idealized journey. **Align the whole team on a plan to fix these broken points** to improve customer experience for the next iteration.

### Time
2 hours working session

### Materials
Worksheet

### Complexity
High: advanced analytical skills and strategic thinking

### Roles
- Product manager
- Technology
- Marketing
- UX expert
COLLECT DATA ABOUT THE SERVICE THAT HAS BEEN LAUNCHED
One to two months after launch, get a snapshot about how the mAgri service is performing. The UX team should do interviews with farmers and agents to collect qualitative feedback on the service. The product team should collect quantitative data from the service usage and do high-level analysis on the performance.

MAP THE AREAS OF BROKEN USER EXPERIENCE
Print or draw out the customer journey map. Based on the quantitative and qualitative data, map all the key issues that need to be improved. Identify the top three to four issues across the journey that everyone in the room is aligned to improve.

DISCUSS HOW TO ADDRESS KEY ISSUES
As a cross-functional group, discuss some possible solutions to address the user experience issues. The group can be split into smaller groups to each work on a separate issue as well.

ALIGN ON RESPONSIBILITIES AND TIMELINE
Based on the discussion, align key responsibilities and timelines for the solution. Plan how these elements will be implemented for the next iterative launch of the product.
CUSTOMER JOURNEY ISSUES WORKSHEET
Identify broken points in the experience

01 JOURNEY STEPS

- **AWARENESS**
  Get to know the mAgri service

- **REGISTRATION**
  Sign up for the mAgri service

- **FIRST-TIME EXPERIENCE**
  Use the mAgri service on their own

- **REGULAR USE**
  Continue using the mAgri service

- **SUPPORT**
  Ask for help if stuck during use

- **UNSUBSCRIBE**

02 TOP ISSUES

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03 POSSIBLE SOLUTIONS
PLAN TO BRING ALL STAKEHOLDERS TOGETHER REGULARLY TO DISCUSS PRODUCT ITERATION SO THEY ARE COMFORTABLE WITH THEIR ROLES AND RESPONSIBILITIES AROUND THIS EVOLVING PRODUCT.

**TIME**
2 hours working session

**MATERIALS**
- White board
- Post-its

**COMPLEXITY**
Medium: good product vision and planning skills

**ROLES**
Product manager
**PLAN FOR NEW ITERATIONS ON THE PRODUCT**

Align on the cadence for when a new product iteration should be launched. Aim for a new iteration during every new crop season, or every six months, so farmers can feel that the product is constantly improving.

**PRIORITIZE KEY AREAS OF FOCUS IN EACH ITERATION**

Prioritize how the resources should be balanced between improving the current service and introducing new features. The customer journey issue mapping should provide a good baseline about priorities for each iteration.

**PLAN FOR QUARTERLY MEETINGS TO ALIGN ON UX PRIORITIES**

Plan to complete the customer journey issues mapping once a quarter with the whole team. This can help ensure that the voice of the farmer is constantly considered and assumptions are not being made about farmer needs.

**EMBED THE FARMER’S VOICE INTO THE PRODUCT CULTURE**

As more team members are involved with the product, ensure new team members have visited the field and have a strong understanding of farmers and their ecosystem. Ensure meeting agenda and project plans embed activities and questions that keep the voice of the farmer alive.
To apply a user-centered process, you need to first align on team setup, existing knowledge, and assumptions. Discuss the overall goal for your mAgri service and how to set up user research to ensure that farmers’ voices and their ecosystem are integrated into the mAgri service.

To create meaningful products, you need to be closer to user, market, and context of use. This understanding starts with going out in the field, asking the right questions, and testing hypotheses with farmers to guide you throughout the design process.

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<td>DISCUSSION GUIDE</td>
<td>IN-DEPTH INTERVIEW</td>
<td>RESEARCH INSIGHTS</td>
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<td>NOTE-TAKING TEMPLATE</td>
<td>FARMING LIFE CYCLE</td>
<td>Refined hypotheses</td>
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<td>TRUST CIRCLE</td>
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<td>HOUSE-FARM TOUR</td>
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<td>INTERCEPT INTERVIEW</td>
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<td>USER ARCHETYPES</td>
<td>IDEATION EXERCISES</td>
<td>VALUE PROPOSITION</td>
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<td>LIFE CYCLE MAPPING</td>
<td>CUSTOMER JOURNEY</td>
<td>SERVICE BLUEPRINT</td>
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<td>MINIMUM VIABLE PRODUCT</td>
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<td>ADVOCATE &amp; SKEPTICS MAP</td>
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<td>PRODUCT ITERATIVE PLANNING</td>
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Further reading on Agri VAS

MARKET OPPORTUNITY AND BUSINESS CASE

**Agricultural value-added services (Agri VAS): market opportunity and emerging business models (2015)**
Estimates the size of the potential Agri VAS market in South Asia and Sub-Saharan Africa and presents an in-depth analysis of the business models in the market today.

**Agricultural machine-to-machine (M2M): a platform for expansion (2015)**
GSMA investigates the opportunity for mobile operators in the Agricultural M2M space.

TECHNOLOGY

**Guidelines for agricultural call centers (2014)**
Lays out a step-by-step process for establishing an agricultural call center.

**Agri VAS functional requirements and best practice: SMS & IVR (2014)**
Outlines the different types of Agri services that can be delivered with SMS and IVR, common pitfalls, and best practices.
**CONTENT**

**Mobile market information for Agri VAS operators: a quick start guide (2013)**
Applying the concept of market information systems to mobile delivery service channels.

**Guidelines for creating agricultural VAS content (2013)**
A guide to understanding the scale and scope of different agricultural content requirements and a step-by-step process to deliver against them.

**PRODUCT & MARKETING**

**Women in Agriculture: a toolkit for mobile services practitioners (2014)**
Outlines the case and considerations for designing an Agri service “through a gender lens.”

**Mobile user analytics: a case study in mAgri (2014)**
This guest study from the M4D Impact team discusses the value of user analytics for improving mobile agriculture services.
AGRI VAS

**Agricultural Value Added Services (Agri VAS): Market Entry Toolkit (2011)**
This comprehensive document explores the opportunities for Agricultural VAS and covers emerging best practices on marketing, service design, and business modeling.

**mAgri CASE STUDIES**

Outlining progress and best practices in mobile agriculture services.

**Vodafone Turkey Farmers’ Club (2015)**
An Agri-VAS and bundled service

**Airtel Green SIM (2015)**
An Agri-VAS service in India

**mFarmer case studies and deep dive analyses of Tigo Kilimo, Airtel Kilimo, Orange’s Sènèkèla and Handygo’s mKisan services**, co-funded by the mAgri team under the mFarmer initiative (2014-15)

**Micro-insurance in mobile agriculture (2015)**
Analysis of ACRE, a Kenyan micro-insurance product for farmers

**mKilimo (2011)**
An agricultural call center funded by the mAgri Program
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