

Knowledge Management: Elements, Processes, Tools & Online Outreach







cgiar.org A CGIAR Research Center

icarda.org

International Center for Agricultural Research in the Dry Areas

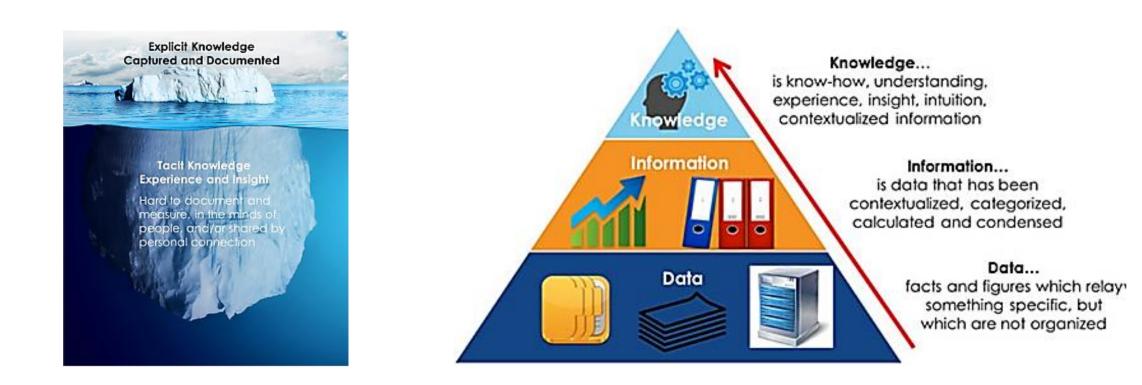


Visualizing Knowledge









"Knowledge management (KM) is the process of capturing, developing, sharing, and effectively using organizational knowledge"

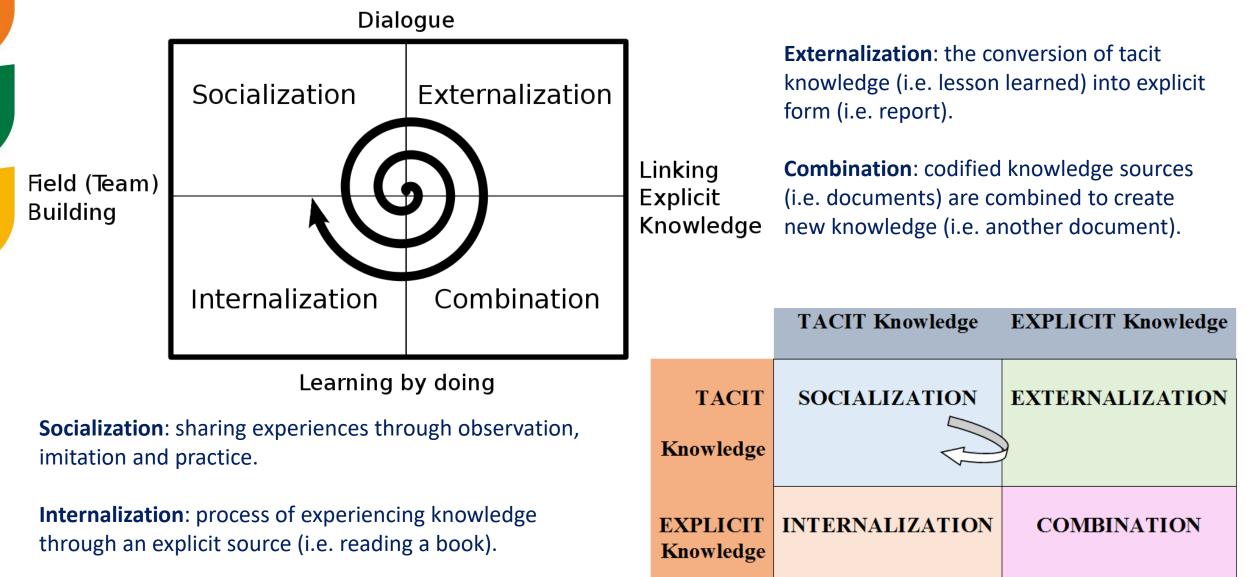
"Knowledge management", 2014, as by Girard & Girard, 2015

"IFAD defines KM as a set of processes, tools and behaviours that connect and motivate people to generate, use and share good practice, learning and expertise to improve IFAD's efficiency, credibility and development effectiveness."

The SECI Model of N&T (1995)







Organizational Contexts



Culture & Strategy

F

R

Foster continuous **learning**, improvement, and innovation in the organization.

Management & Leadership

Managers, officers, audit, steering committees... capable of **taking decisions**. Ŧ

People & Skills

CKO, scientists, consultants, trainers, librarians... capable of **informing decisions**.

Technologies & Assets

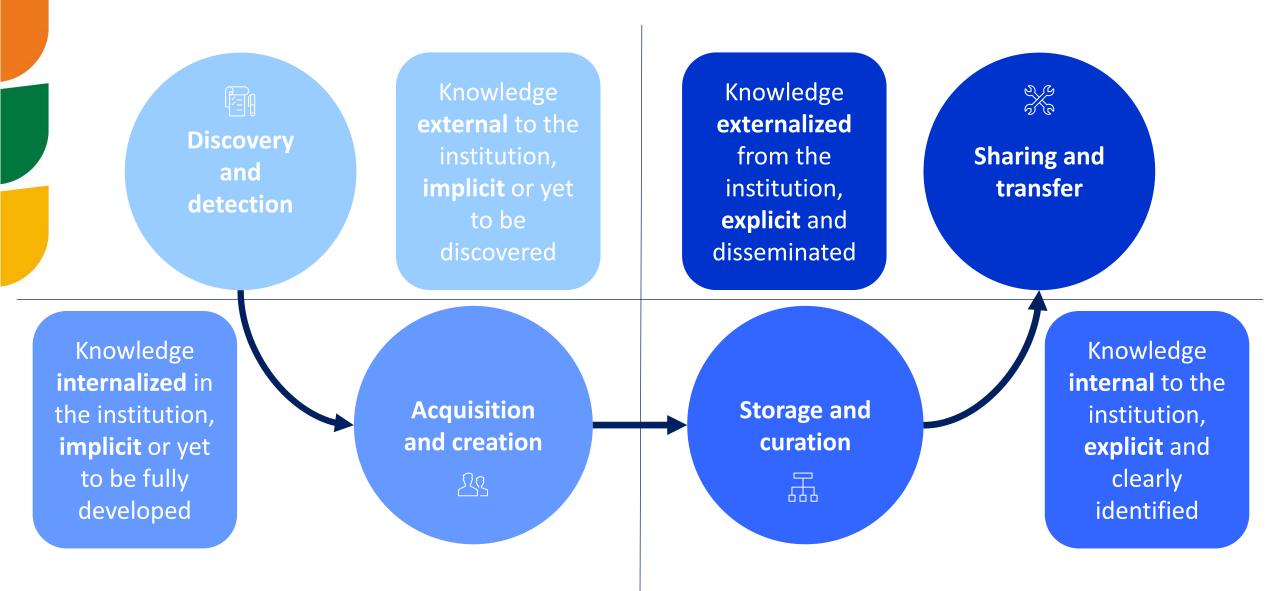
Solutions that **support** and facilitate discovery, creation, storage and sharing

×

The framework for managing knowledge varies from institution to institution, based on the number of processes it runs to carry out its mandate.
It is important to identify these aspects to delineate the context in which the institution operates with knowledge and the main protagonists.

An Essential KM Workflow





Scan your own institution to identify existing knowledge sources, discovering hidden knowledge in data and information. Probe websites and libraries, attend to meetings.

I. Knowledge Discovery and Detection

Internal knowledge may be resident within peoples' heads; embedded in behaviors, procedures, software and equipment; recorded in various documents; or stored in databases and online repositories.

Tacit knowledge is personal, contextspecific, and therefore hard to formalize and communicate.

Ikujiro Nonaka, 1995



Common sources of **external knowledge** include publications, universities, government agencies, professional associations, personal relations, consultants, knowledge brokers, and Communities of Practice (CoP).



Knowledge creation takes place through the transformation of tacit knowledge to explicit and backward (Nonaka and Takeuchi 1995), **writing** a paper, for example.

II. Knowledge Acquisition and Creation

Existing knowledge can be combined and converted into new products, for the same of new purposes, such as **combining** existing rules and best practices to produce a set of guidelines.

The act of making knowledge created by individuals available, amplifying it in social contexts, and selectively connecting it to the existing knowledge.

Nonaka & von Krogh, 2009



The ability to create new knowledge is often at the heart of the organization's **competitive advantage** and has the potential to achieve its mandate.



Knowledge storing involves finding ways to convert documents, models, human insights and other artefacts into forms that make retrieval and transfer easy without losing the "true meaning" of the knowledge.

III. Knowledge Storage and Curation

With the use of information technology, organizations have developed vast **repositories** of knowledge about science, projects, processes, technologies and more.

3

Taxonomy enables the structure to organize information, documents, and libraries in a consistent way. It can be considered as a **classification** system, a "Table of Contents", for an organization's knowledge capital. Knowledge organization involves activities that "classify, map, index, and categorize knowledge for navigation, storage, and retrieval".

Botha et al., 2008





Organizations can realize the full value of their knowledge **assets** only when they can be effectively transferred between individuals.

IV. Knowledge Sharing and Transfer

Sharing is essential for the peer reviewing process to take place and publishing impactful knowledge. A valuable goal is to externalize **best practices**, which are a result of proper and well established knowledge management.

3

Transfer knowledge is also the core of **Capacity Development**, a key area for each organization willing to transfer its knowledge and establish a legacy. Knowledge sharing has been recognized as the most important factor in the success of KM.

Nazim et al., 2016



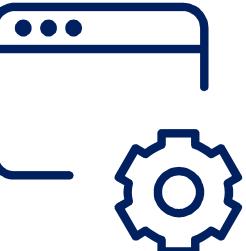
Sustainability and KM



Strengthening Knowledge Management for Greater Development Effectiveness in the Near East, North Africa, Central Asia and Europe



- Valorizes the research **results**.
- Increases network **connectivity**.
- Leverages **expertise** across the organization.
- Allows employees to obtain relevant insights.
- Evaluating progress through indexes and **metrics**.
- Facilitates innovation and organizational learning.
- Monitoring projects, institutions and media **resonance**.
- Learning from indicators in frameworks for institutional awareness.
- Sharing the results through information products publication and dissemination.
- Valuing impact through **policy informing**, innovations generation and best practices adoption.
- Partnership building for research alliances, innovation platforms and science-policy interfaces.
- Research on-field and in laboratory for scientific advancement, capacity development, gender equality and **opportunities** for youth.
- Supports the **intellectual capital** and assets in the workforce, such as the expertise and know-how possessed by **key individuals** or stored in **repositories.**



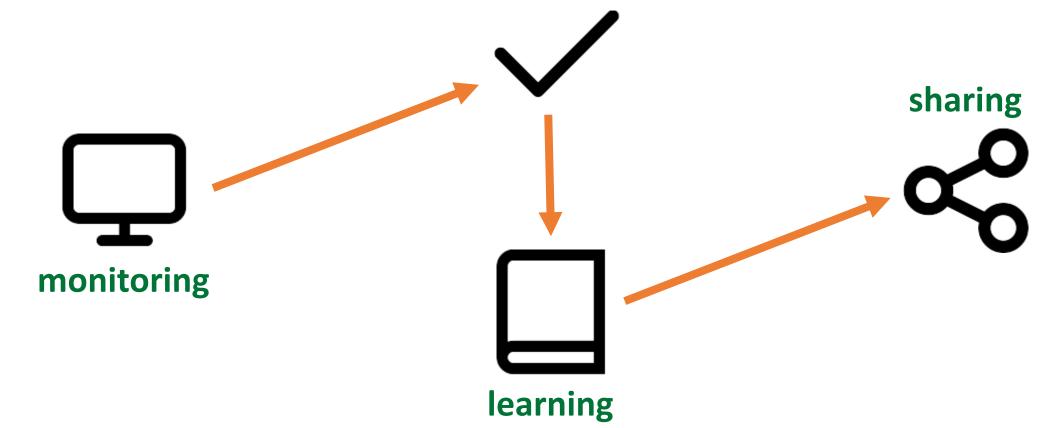






Knowledge Management means more than optimizing the data flow within an institution, itself an essential and valuable asset, it also means enabling and foster post-research impact over time, through:

evaluating



Knowledge Value-for-Money





Key Aspects: Mapping to the Value-For-Money Framework

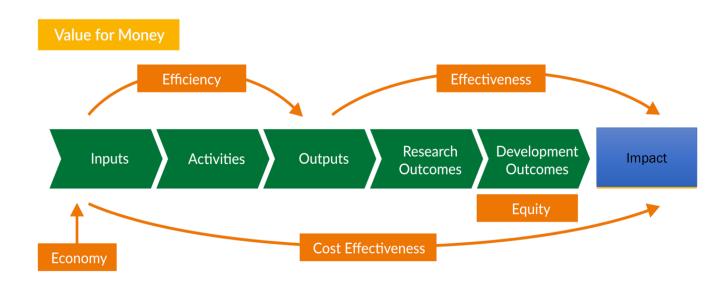
The criteria to be considered are defined as follows:

Economy: The cost of inputs used for an activity, with regard to maintaining quality.

Efficiency: The extent to which an intervention converted input into outputs by increasing output for a given input, or minimizing input for a given output, with a regard for maintaining quality.

Effectiveness: The extent to which expected outcomes are achieved through the outputs obtained from an intervention.

Equity: The extent to which development outcomes have included the poorest, have reached the most vulnerable and have been gender-sensitive and youth oriented.



ICARDA Strategic Plan 2017-2026, adapted from the Department for International Development, 2011 and Jackson, P. 2012. Value for Money and International Development: Deconstructing Myths to Promote a More Constructive Discussion. Organisation for Economic Co-operation and Development.

IFAD CLPE Guide Book



FIGURE 1 The K* Framework – Functions of knowledge

Informational functions

Information intermediation

- Enabling access to information from multiple sources
- Informing. aggregating, signalling information

Linear dissemination of knowledge from

producer to user

	Knowledge
1	translation

Helping people make sense of and apply information Disseminating, translating.

communicating knowledge and ideas

Knowledge brokering

- Improving knowledge use in decisionmaking; fostering the co-production of knowledge Bridging, matching,
- connecting, linking, convening, boundary spanning, networking

Innovation brokering

Relational

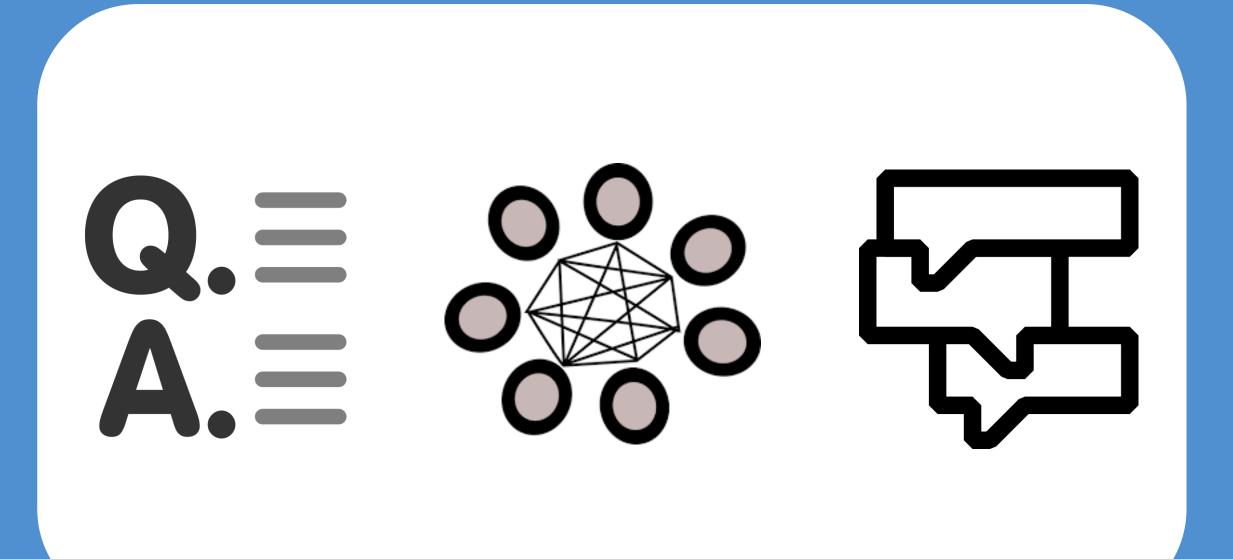
functions

- Influencing the wider context to reduce transaction costs and facilitate innovation
- Negotiating, building, collaborating. managing relationships and processes

Co-production of knowledge, social learning and innovation

"... the K* framework may be useful to consider how information is used and how to gain the best traction for policy impact. By applying the framework, it is possible to decide how to work with knowledge... Depending on what you find, you may consider that some type of policy work is not possible for you to do alone, so therefore you must partner with others to do this effectively..."

Source: Shaxson L. (2016). Achieving policy impact: guidance note. London: DFID-ESRC Growth Research Programme and ODI. Available at http://degrp.squarespace.com/research-impact/











The principles refer to **Data Objects**, a machine (first) and human (second) intelligible resource of information constituted by:

- **Data**: in the form of **digital object** (i.e. file).
- Metadata: information about that digital object.
 - Persistent Identifier (PID).

It is defined as **FAIRport** any "machine-oriented data repository" that:

- Contains FAIR Data Objects.
- Provides accessibility for Data Objects re-use.
- Has a full and open description of all technologies, controlled vocabularies and formats used.

Data Object	
PID	
Metadata (intrinsic)	\cap
'provenance' (user defined)	
Data (elements)	

https://www.force11.org/fairprinciples

Data Curation





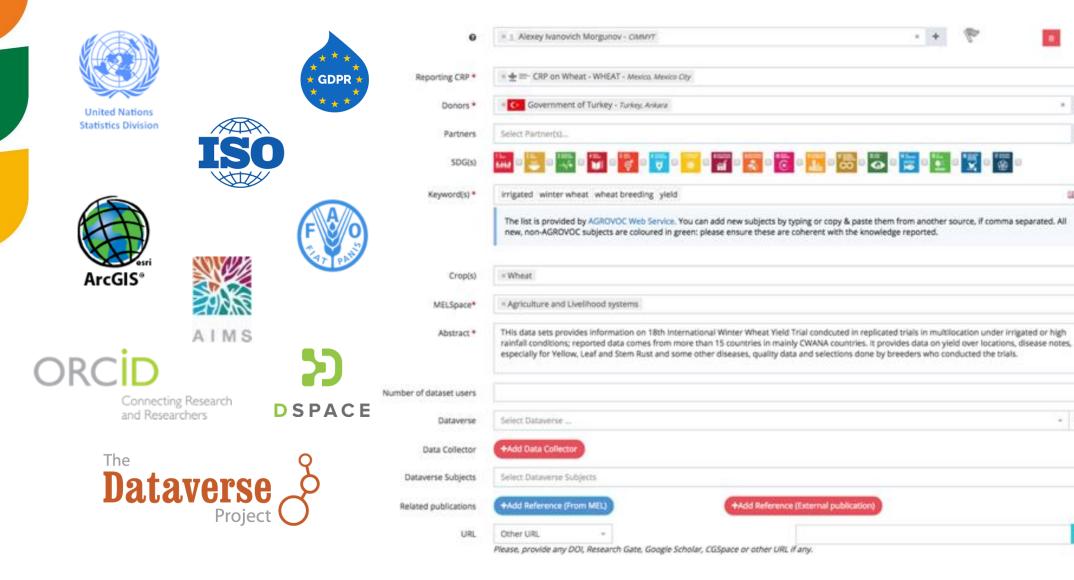
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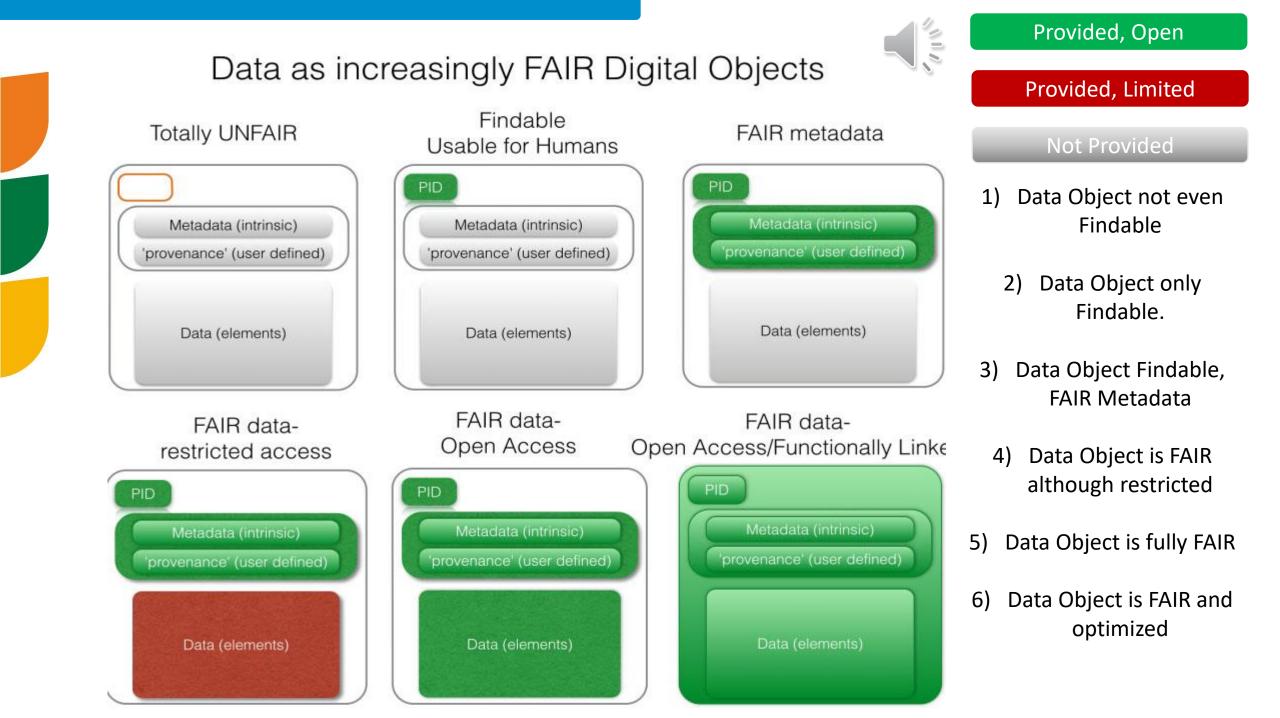
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Knowledge Publication



GDPR 🖈





150.000+

Funding Activities Credited **Over 5 Million** Worldwide.

GDPR Safe Measures for Data Sharing and Interoperability



RoMEO

Ccreative Commons CC)

400+ Millions

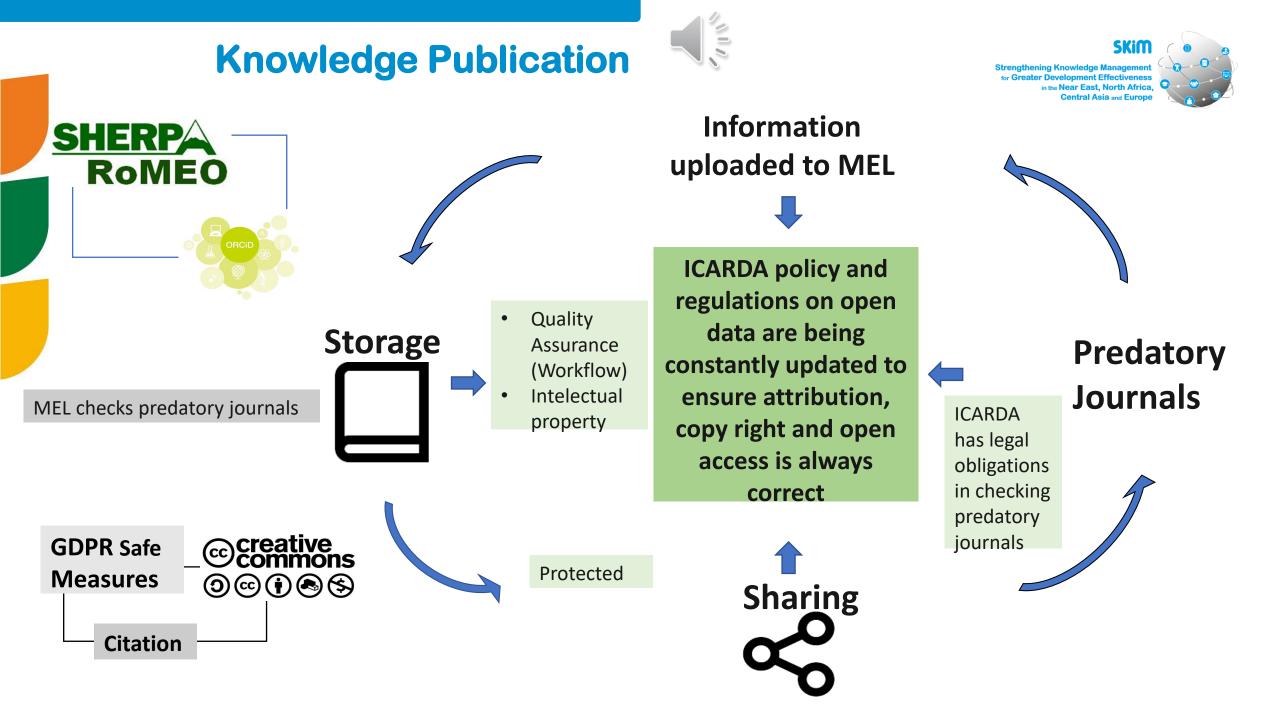
licenses of which more than <u>40%</u> **Open Access*.**

Publishers, SHERP

30k+ Journals and Related **Policies for Archiving and**

Sharing.

2500+



Innovations & Solutions Workflows

SLM Approaches

ways and means used to

including the stakeholders

involved and their roles.

An SLM Approach defines the

implement an SLM Technology,

View

Add



Strengthening Knowledge Management for Greater Development Effectiveness in the Near East, North Africa. Central Asia and Europe



WOCAT Global SLM Database 🗸

Information for UNCCD Parties

Search SLM Data



SLM Technologies

An SLM Technology is a land management practice that controls land degradation and enhances productivity and/ or other ecosystem services.





Sustainable and decentralized infrastructures to adapt to climate change

Mobilizing and training rural communities to construct lowcost water management SEE SOLUTION



Climate Adaptive Fodder Production

A technology to support livestock productivity and ensuring household economic

SEE SOLUTION



Drought vulnerability assessment and mapping

A tool for tailoring drought mitigation and adaptation strategies



Enhancing access to financial services for young entrepreneurs

Inclusive rural finance and capacity development through knowledge-sharing and practical

SEE SOLUTION



Community Initiative Fund

A matching-grant formula for financing groups to set up smallscale productive enterprises

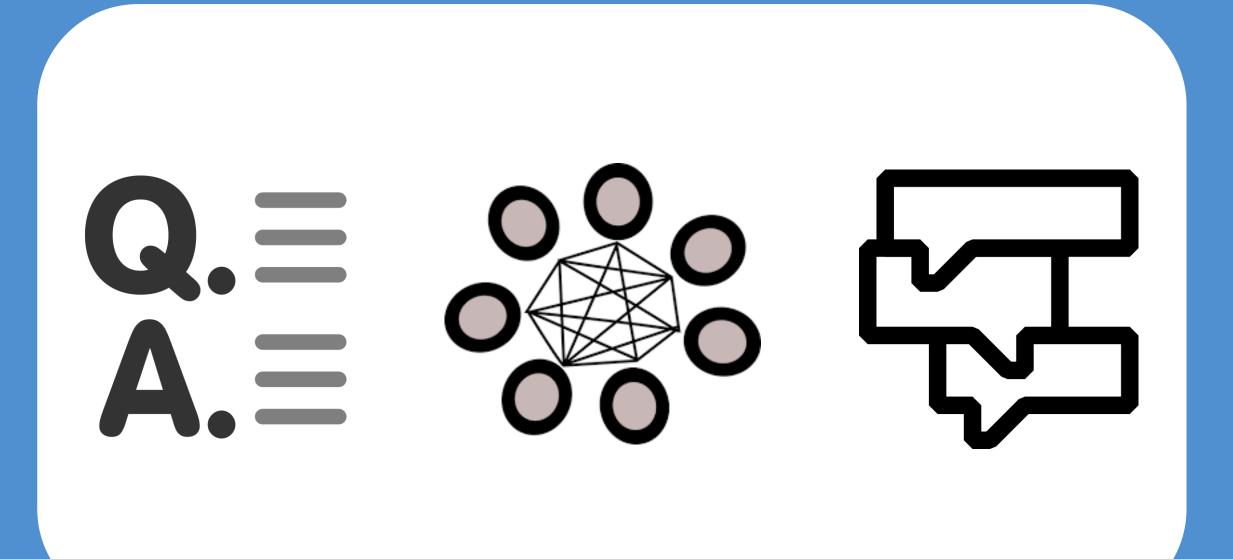
SEE SOLUTION



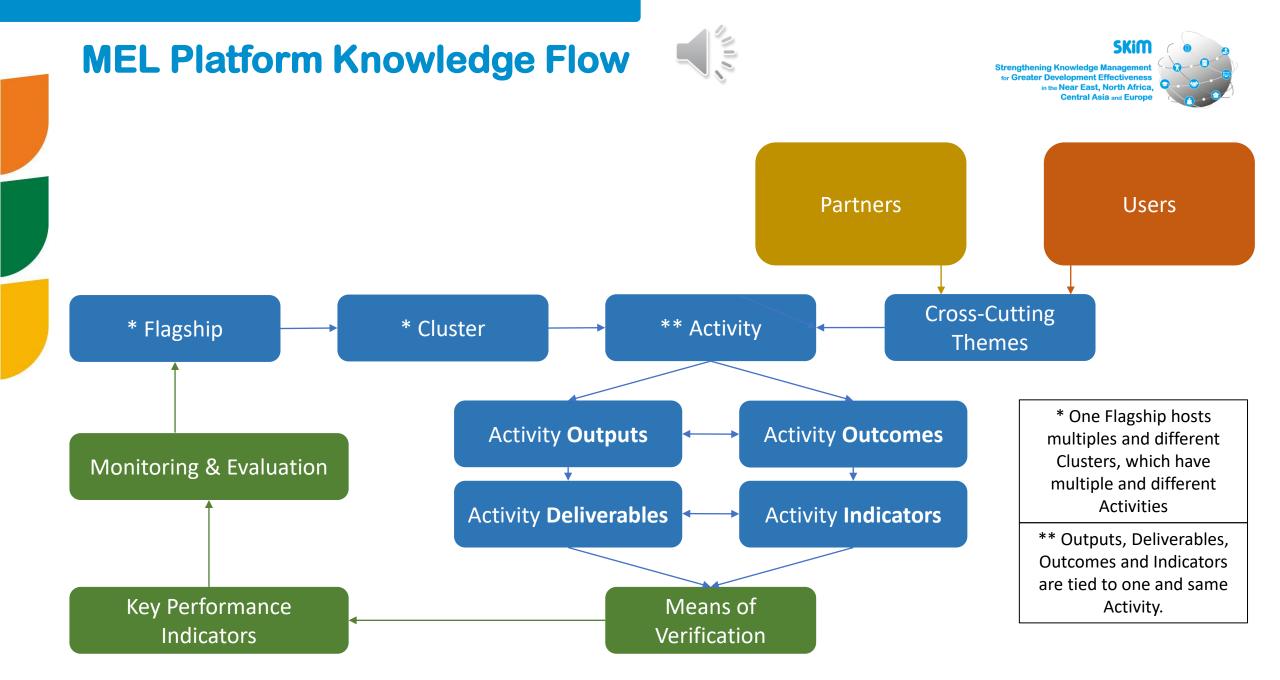
Timely information Access

AgriPredict is an agritech company whose aim is to provide timely and on-demand

SEE SOLUTION







MEL Interoperability: API



Strengthening Knowledge Ma for Greater Development Effectiv

in the Near East. North Africa. **Central Asia** and Europ

🎡 MEL

token

Explore

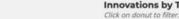
Welcome to MEL API

Project	Show/Hide List Operations Expand Operations
cct /v1/projects/{id}	Read Object(s)
arr /v1/projects	Read Object(s)
<pre>/v1/projects/{parentid}/project_manager_id/{id}</pre>	Read Object(s)
<pre>with a state of the state</pre>	Read Object(s)
Publication	Show/Hide List Operations Expand Operations
ert /v1/publications?id=(id)	Get a publication by id
ctt /v1/publications/search	Get publications count
crr /v1/publications/count	Get publications count

Innovations

Innovations are new or significantly improved outputs or groups of outputs - including management practices, knowledge or technologies.

Innovation Location Select one or more countries (press ctrl) to filter.





Innovations by Type



 Research & Communication Methodologies & Tools Production Systems and Management Practices Social Science Biophysical Research

N/A or Not Provided

269

181

107

Contributing non-CGIAR Organizations

Click on bars to filter.



Home > Our experts > Mourad Rekik



Mourad Rekik Small ruminant production scientist minkleft/tiglating

Mourad Rekik is livestock scientist based in Amman, Jordan with more than 25 years of experience in animal reproduction and small ruminants' production and management in drylands. His expertise includes sheep and goats reproduction and its interaction with nutrition, health and genetics. He is involved in the CGIAR. research program on dryland systems as well as livestock and fish. His current research interests focus on boosting resilience and productivity of the livestock production systems at the household level and attenuating the impact of environmental and economic stressors.

Prior to joining ICARDA, Rekik was researcher and lecturer in several universities in Tunisia. He was also coordinator of several research for development projects. involving multidisciplinary teams. He served as member of the British Society of Animal Science and FAO-CIHEAM network on sheep and goats nutrition. Reklik is author of more than 80 peer-reviewed journal publications, book chapters, and conference papers.

Rekik holds a Ph.D. in animal production from the University of Reading in the UK.

Publications

Molecular detection and phylogenetic analyses of Toxoplasma gondii from naturally infected sheep in Northern and Central Tunisia Mariem Rouathi, Yosra Amdouni, Safa Amairia, Mohammed Rijelbi, Said Sammoudi, Mourad Rekik, Mohamed Gharbi. (20/12/2017). Molecular detection and phylogenetic analyses of Toxoplasma gondii from naturally infected sheep in Northern and Central Tunisia. Veterinary Medicine and Science, 3(1), pp. 22-31.

Molecular survey and genetic characterization of Anaplasma centrale, A. marginale and A. boyis in cattle from Algoria

Mohammed Rijeibi, Mourad Rekik, Mohamed Gharbi, Omar Ayadi. (30/4/2018). Molecular survey and genetic characterization of Anaplasma centrale, A. marginale and A. bovis in cattle from Algeria. Transboundary and Emerging Diseases, 65(2), pp. 456-464.







 Stage 3: Available for Uptake | • Stage 4: Uptake by Next Users



CIMMYT

IRRI

CIP

ILRI

IITA

CIAT

IFPRI 50

BIOVERSITY 34

WorldFish 51

ICARDA 34

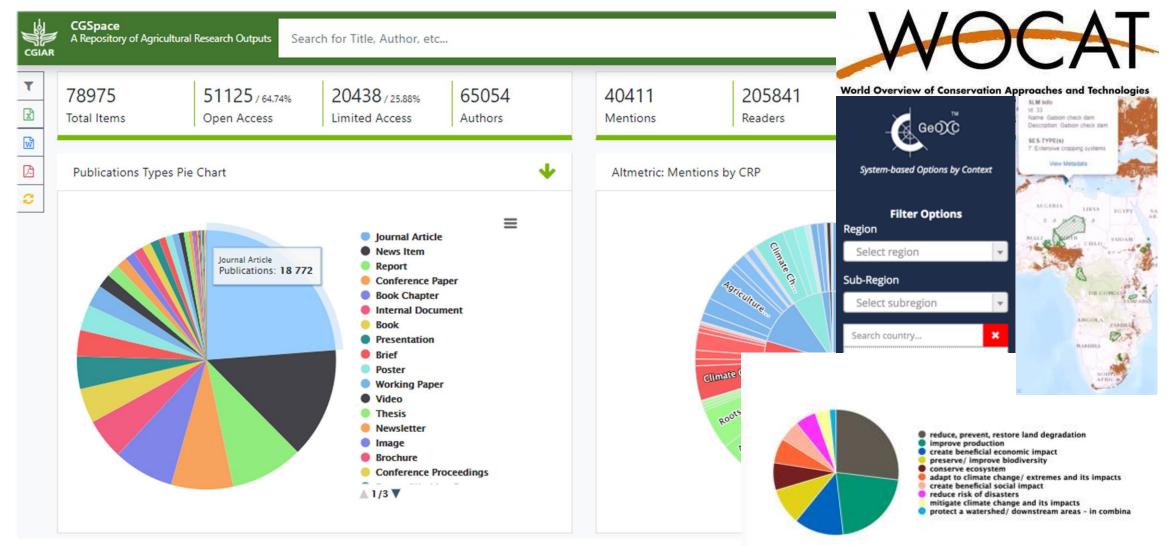
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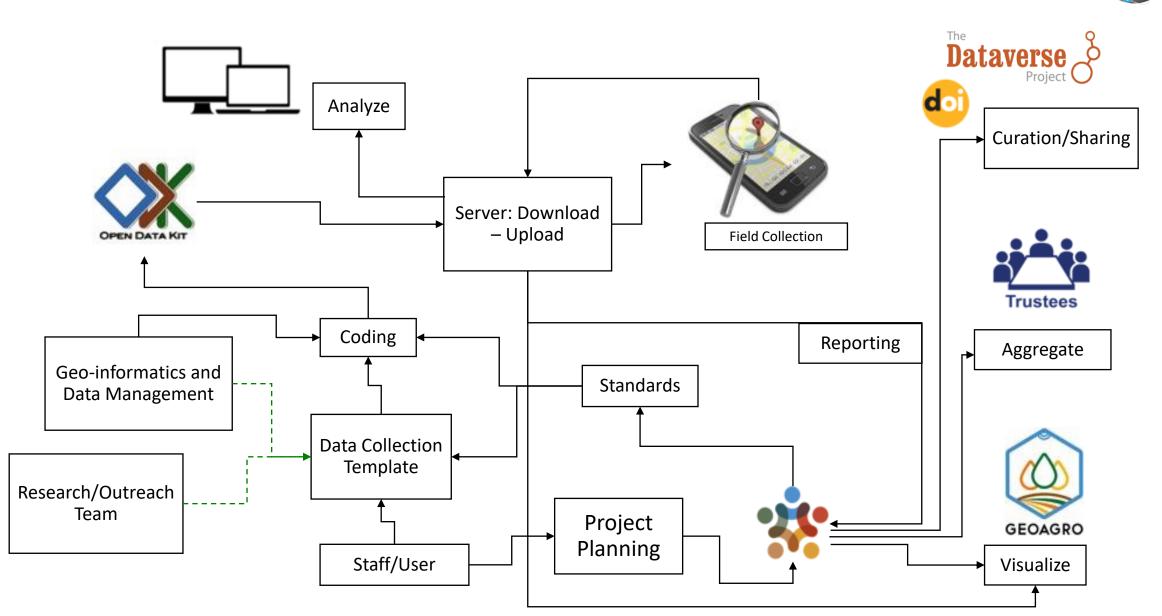
MEL Interoperability: Explorers







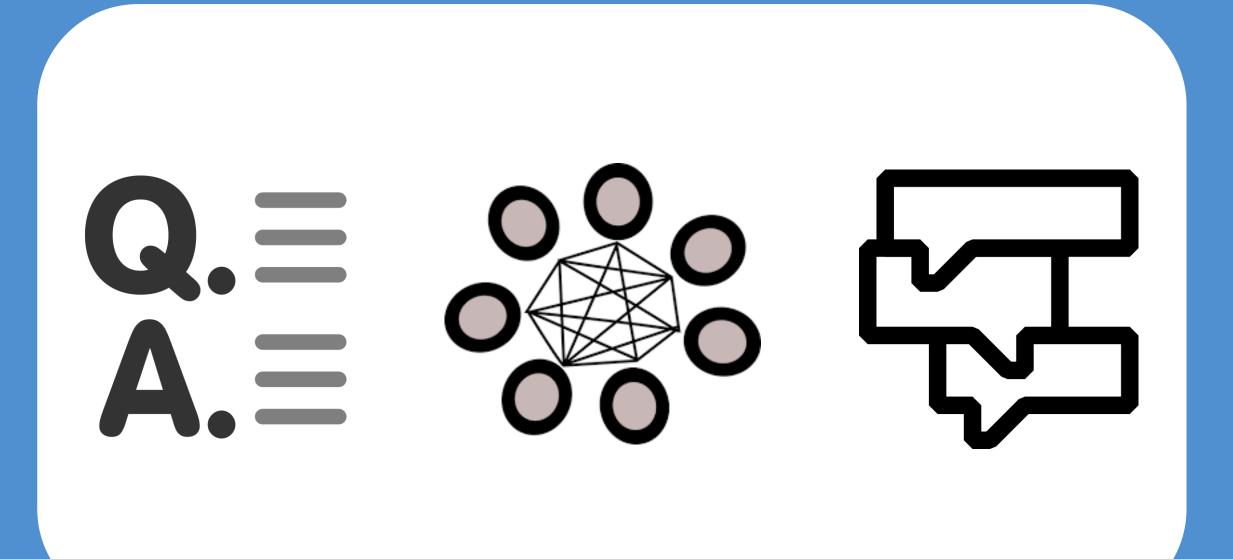
MEL Interoperability: Collection



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athening Knowledge Man



Online outreach







What is Knowledge Management?



C Published on: December 10, 2019, Submitted by Emilie Vansant on: December 9, 2019

A brief overview of the two-day regional workshop, ""Bridging Knowledge Creation and Sharing for Natural Resource Management and Climate Resilience," sponsored by IFAD through the cross-regional project, "Strengthening Knowledge Management for Greater Development Effectiveness in the Near East, North Africa, Central Asia and Europe"





"... Sharing Success"

Strenathening Knowledge Ma for Greater Develo in the Near East, North Africa Central Asia and Eur

Seminar/Workshop/Training Course - Workshop on **Knowledge Management and Capacity Development Best** Practice: Valorization and Transfer of Research Results

IT Jun 29, 2020 - Jul 2, 2020

	Monday, June 29	Tuesday, June 30	Wednesday, July 1	Thursday, July 2	Friday, July 3
Morning	Virtual visits to KM assets (ICARDA, participant institutions)	Review of CapDev and Innovation Plans (ICARDA) Participatory CapDev Activities (CIHEAM-Bari)	ICT and RTA tools (CIHEAM-Bari) KM Tools (ICARDA) SKIM KM Portal (ICARDA)	AGRIS (FAO)	Innovation Models and Organizations (CIHEAM-Bari) Knowledge Ecosystems (CIHEAM-Bari, H&D Partners
Afternoon	Enhancing Communication skills (CIHEAM-Barl)	Newsletter Making (ICARDA) Social Media Guidelines (ICARDA)	IFAD Rural Solutions (IFAD)		Knowledge Ecosystems (CIHEAM-Bari, H&D Partners Network Analysis (ICARDA)
Daily Responsible	Valerio Graziano (ICARDA)	Jocelyne Jawhar (CIHEAM-Bari)	Luigi Sisto (CIHEAM-Bari)	Imma Subirats (FAO/AGRIS)	Damiano Petruzzella (CIHEAM-Bari)
Sessions Moderators	Valerio Graziano (ICARDA) Gabriella Gentile, Eleonora Ciciriello, Laura Scivetti (CiHEAM-Bari)	Akmel Akremkhenov, Valerio Graziano (ICARDA) Luigi Sisto, Onofrio Lorusso, Jocelyne Jawhar	Enrico Bonaiuti, Valerio Graziano (ICARDA) Luigi Sisto, Onofrio Lorusso (CIHEAM-Bari)	Imma Subirats, Ilkay Holt, Karne Wegner, Stefano Anibaldi (FAO/AGRIS)	Demiano Petruzzella, Jocelyn Jawhar (CIHEAM-Bari) Giordano Dichter (H&D partners)

Target Audiences

- Academic Institutions (universities, colleges, etc.)
- National Agricultural Research System (NARS)
- Non-Governmental Organizations (NGO)
- Government
- International Agricultural Research Centers
- Advanced Research Institutions
- International Development Organizations (including Development Projects)
- Regional and sub-Regional Organizations

Participants Countries

- Italy
- Uzbekistan
- Turkey

Seminar/Workshop/Training Course - Training Course on Virtual Learning Route on Knowledge Management Best Practices in Sudan

In Nov 20, 2020 - Dec 4, 2020

	ov 20, 2020 - Dwe 4, 2020	
· Jos - The real and real of the	The Sudan Country	https://hdl.handle.net/20.
Suchars Country Source Book Rest Practices and Voyvation	Source Book	500.11766/12117
	Step 0 - Introduction to	https://hdl.handle.net/20.
	Knowledge Management	500.11766/12118
SKIM Schoolstein stellen awleid gestellen and Schoolstein stellen einament Steet Handes	Step 1 - Learning Routes	https://hdl.handle.net/20. 500.11766/12119
P internet	Step 2 - Gender Action	https://hdl.handle.net/20.
A. 1997 2 2 9 2 9 3	Learning Systems	500.11766/12120
	Step 3 - Community	https://hdl.handle.net/20.
A ANTRO A THINK .	Enowledge-based Peer Networks	500.11766/12121
	Step 4 - Natural	https://hdl.handle.net/20.
	Resources Governance	500.11766/12122
ICARDA Procasur	The Learning Survey	https://forms.gle/t4cyyhLK hM8MGWzz9

GENERAL OVERVIEW

In the framework of the IFAD funded SKIM project, the International Center for Agricultural Research in the Dry Areas (ICARDA) and Procesur Corporation (PROCASUR) publish together a wealth of Information on Sudanese agricultural knowledge management best practices through a closely monitored and interactive-like social media campaign on Virtual Learning Route from 30 November to 4 December, 2020. This new approach shall contribute to raise awareness on the importance of knowledge management as an asset for rural development, trough peerlearning, knowledge sharing and south-to-south triangular cooperation.



The Voice of the Partners





WORLD INTELLECTUAL PROPERTY DAY 2020

INNOVATE FOR A FUTURE VORLD FILECTUP APRIL 26

Priority-Setting in Agricultural Research

The SKiM

and boostii

with news,

how to use

Ensuring Intellectual Property across institutions,

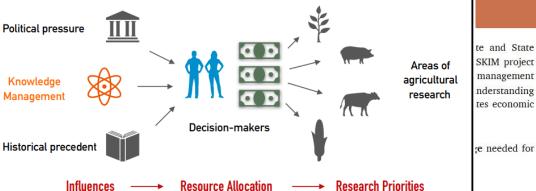
networks and st HOW IS KNOWLEDGE SHARED IN AGRICULTURAL PRODUCTION SCHEMES?

Knowledge Mar by Tyseer Elhadi Omer, Assistant Professor of Agricultural Sociology capacity develop Department of Agricultural Extension and Rural Development University of Khartoum, Sudan

In honor of Int Hi, my name is Tyseer and I will introduce the approach of social network shares best pra analysis to understand knowledge to scientists ove sharing in agriculture production schemes. I recently investigated how multi-stakehold farming knowledge is networked among Learning" (MEL) different actors in the Rahad Agricultural

Eastern Sudan (RAS) (260 Km ast of Khartoum) so as to

(3) Professor Jeffrey Alwang, Virginia Tech



SKiM.

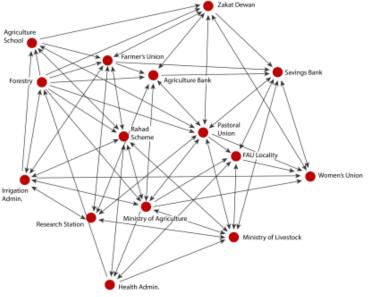


Figure 4: Connections between actors at the RAS level

Home Organize v	Planning v Reporting v Approvals v KPIs v Open Facts v Knowle	edge Sharing 🗸 Survey 🗸	
	Polici	ies, Outcome Stories & Blogs	
< BLOG			
Axis *	Select Project(s) / Products(s)		Reset
Program	Select		
Megaproject	Select		
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Link to	Select related blog(s)		Get the reader's attention with an eyecatching Image: Please select at least 1-2 photos, diagrams or even cartoons that best illustrate your key message or the activity/phenomenon described. Use picture
Choose a reviewer *	MEL team - MEL	x - +	title in the upload function to specify the caption. Images must be at least 1, and preferably 3 or 4, megabytes. Please do not resize your images through prepare them for the web. We will make any adjustments necessary.
Author *	Select Author	~ +	Select from Media Library Reset



Judging a Research Media –or– Academic Social Networking Site (ASNS)

- Terms of Use and Privacy Policy
- FAIR Policy
- Renown Web Services
- Quality Metadata
- Board and Admins
- Excellent Behavior
- Clean History



Metrics and Analytics



Strengthening Knowledge Management for Greater Development Effectiveness in the Near East, North Africa, Central Asia and Europe

SKin



Harnessing global fisheries to tackle micronutrient deficiencies

Overview of attention for article published in Nature, September 2019



SUMMARY	News	Blogs	Twitter	Facebook	Reddit	Misc.	Dimensions citations	
Title	Harnessing global fisheries to tackle micronutrient deficiencies							
Published in	Nature, September 2019						View on publisher site	
DOI	10.1038/s41586-019-1592-6 🗹							
Pubmed ID	31554969 🖸						Alert me about new mentions	
Authors	Christina C. Hicks, P	hilippa J. Cohen,	Nicholas A. J. Grah	am, Kirsty L. Nash, Ed	ward H. Allison [[show]		

The Colors of the Donut

Policy documents Google+ LinkedIn News Blogs Reddit Twitter Research highlight platform Post-publication peer-reviews Q&A (Stack Overflow) Facebook Youtube Sina Weibo Pinterest Syllabi Patents Wikipedia





Search Engine Optimization & Marketing: informing Knowledge Management

The Internet and Your Website





People will come to you if they:

- know where to find your place
- find your store pleasant
- are interested in your offer
- think it's worth it
- trust your reputation
- can rate and share their experience...

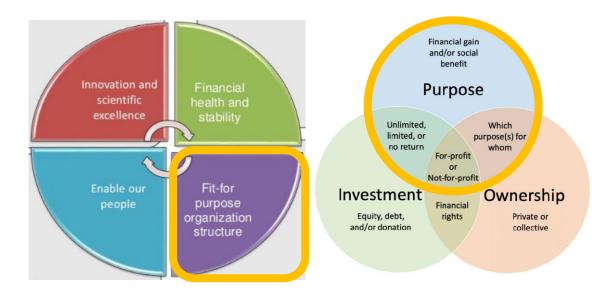


... and to know all that, 4+ billion people ask Google 3+ billion questions every day.



Talking Strategy: Organic Growth



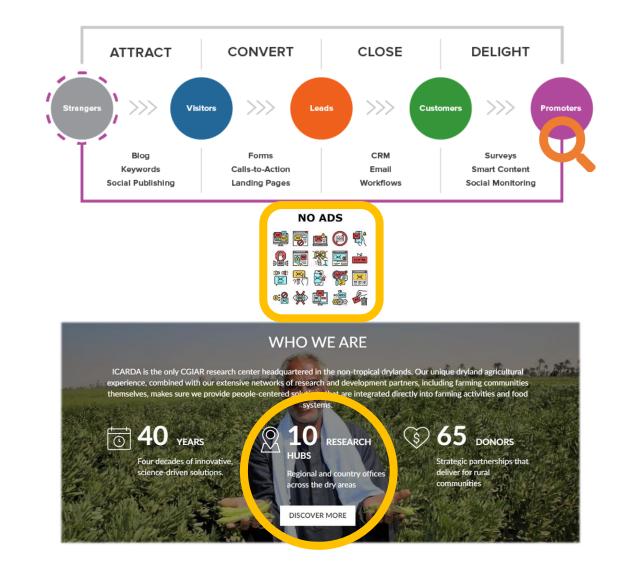


Return on Investment = $\left(\frac{\text{Net Profit}}{\text{Cost of Investment}}\right) \times 100$ "Purpose" models aim at equalizing expenditures (*planning*) with target goals (*reporting*).

SEO/SEM strategies identify cost-efficient courses of action to achieve target goals.

Organic architectures are costefficient and make the best out of paid efforts. This is the **go-to** option for "purpose" models.

Be FAIR, Go Inbound

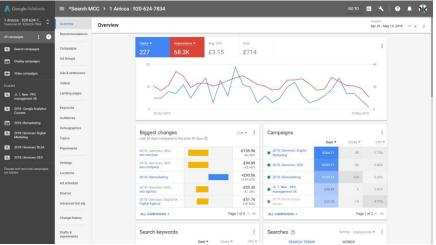


Inbound Marketing is all about Open Access and User Experience:

- elevated ethics standards
- useful contents presented well
- F.A.I.R for knowledge outreach
- generates value over time.
- grows trust and reputation
- fit for partnership building
- accountable toward goals
- capable of powering realities
- simple to implement and run
- synergizes with communication

Pay to Stay and Pay to Score

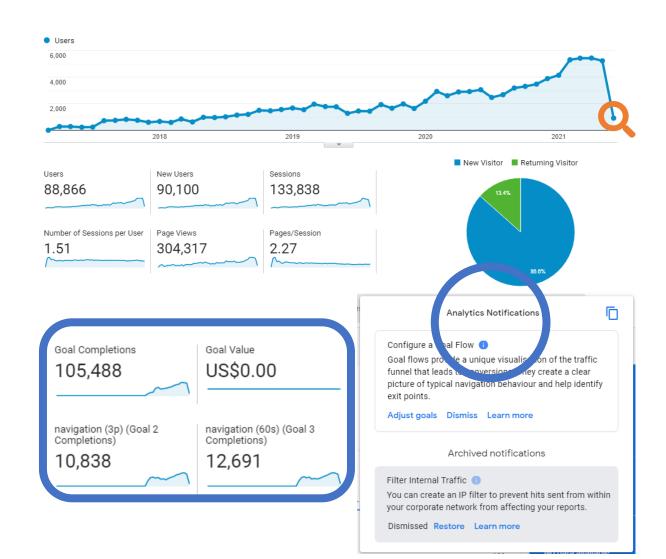




Paid campaigns are best suited for specific and focused actions:

- ads: target your segments for search or display.
- display: grow trust and allure of your website, offer or brand.
- search: get paid-driven views.
- remarketing: is the practice of targeting potentially interested users to trigger conversions and capitalize paid efforts.

Know Your Audience and Set Goals



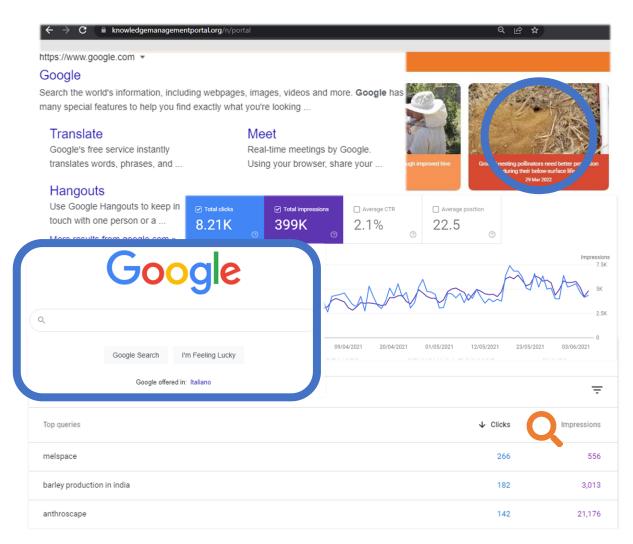
Analysing the traffic is the first step toward identifying, targeting and understanding your audience.

It is possible to monitor traffic at 360°, observing users navigation experience, habits, interests, demographics, behaviour, sources, devices, conversion rates to goals.

The data needs reading, but should an expert not be around, Google resources can help.



Understand What's Going On



You can assess the performance of your websites looking at:

- Queries compared to meta fields, rich snippets, content findability: does Google find your website clear in its scope and structure?
- Bounce rate compared to PageSpeed and navigation time: do your audience find what it's looking for quickly and accurately?
- Pages views compared to URL quality and warnings: is the navigation easy and consistent for the user?
- Behaviour compared to Goals : is the website performing with a good conversion rate across the target segment?
- Quality content and links: are you cheating?

Build on Your Findings



	Ov	erview		
Unique	Users	Returning Users (Unique Users %)		
866	, ,	194 (18.4%)		
All Page Views	Unique Page Views	Average Time on Page		
6299	2816		20 ¹¹	
Sessions (Average per User)	Average Session Duration	Average Bounce Rate	Average Exit Rate	
1493 (1.72)	4' 59"	49.77% ^a	23.70% ^b	

a) The **bounce rate** is high, this usually happens when the page takes long time to load, the users cannot understand quickly the nature of the website or cannot orient themselves quickly enough.

Recommended actions:

- Improve the pagespeed of the website applying for each page the recommendations of the
 https://developers.google.com/speed/pagespeed/insights/ tool, bringing the mobile score at least to
 an average score of 50 and the desktop score to at least a good score of 90.
- Insert an introductory text and more text content for each page. This text can be located in the highest part of the pages right below the header.
- Insert a navigation menu in the header, between the existing header and the introductory text (see previous point).
- Enrich the footer with internal links by category of content.

Portal	News	Projects	Partners	Publications	Networks	Resources

The IFAD funded SKiM Knowledge Management Portal, is a beacon of publications, news, data and information coming from research for development organizations, academia, government bodies, national agricultural research systems and extensionists across the globe. The Portal is built to enhance the outreach of the scientific and organizational knowledge aggregated, fostering partnership building and information sharing across users and institutions, strengthening knowledge management and providing the basis for more advanced knowledge visualization (DSpace powered AReS).

Portal

What's New





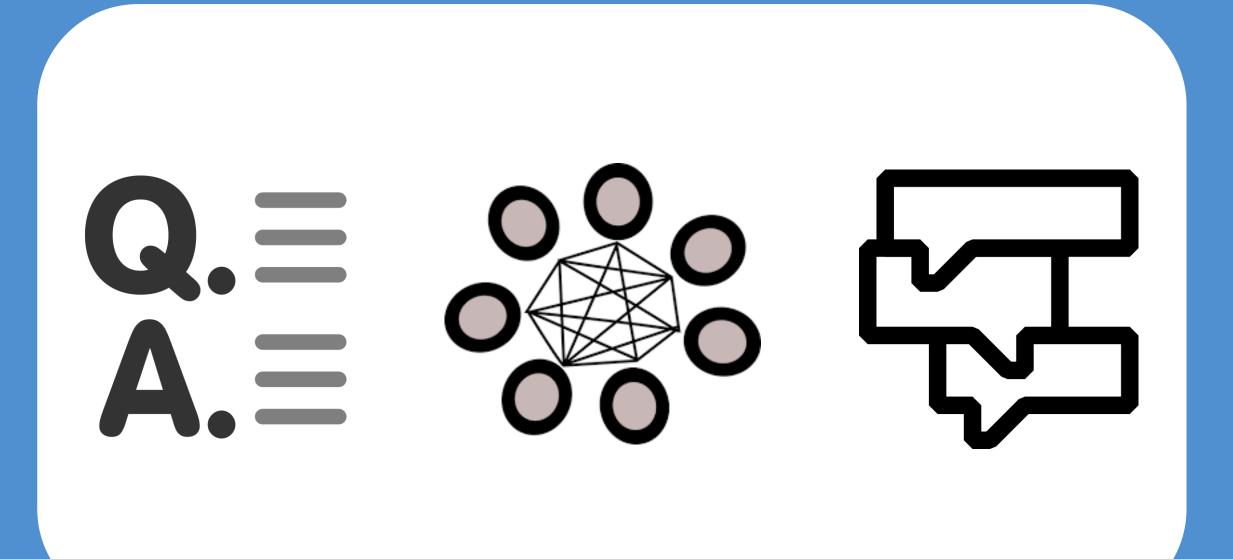
Ongoing Projects

Al-Driven Climate-Smart Beekeeping for Women (AID-CSB) Take action by recording issues in performance, put them in perspective and identify causes.

Deploy solutions according to best practices and record changes.

Keep observing performance against solutions and baseline values to pinpoint case-specific best practices.

Contribute to the institutional expertise for future developments!









Thank you!





