Divina Frau-Meigs
UNESCO Chair, President Savoir*Devenir

The new frontiers of MIL frontier: algo-literacy through the Crossover project

The current state of algo-literacy

Assessing the state of algo-literacy

1/ Pre-service and in-service teachers express low levels of confidence in their understanding of social media as a tool to engage in debate, as well as knowledge of the role of algorithms and data.

2/ Research lacks valid skills scales to design and evaluate robust algorithm education interventions.

3/ One of the unique challenges with teaching algorithm education is the opacity of algorithms themselves (”black box” effect/myth).

4/ By now, many media literacy resources and competency frameworks refer to algorithms, and some are specific for algorithm education. BUT LACK SPECIFIC FOCUS (Frau-Meigs)

Working definitions of algo-literacy

Algo literacy is "a set of capabilities used to organize and apply algorithmic curation, control and active practices relevant when managing one's AI environment." (Shin, Rasul and Fotiadis (2021)

Algorithmically literate individuals "are able to apply strategies that allow them to modify predefined settings in algorithmically curated environments, such as in their social media newsfeeds or search engines, to change algorithms' outputs, compare the results of different algorithmic decisions, and protect their privacy." (Dogruel et al (2021)

Algo-literacy is "the combination of users' awareness, knowledge, imaginaries, and tactics around algorithms" (Swat 2021)

These definitions focus on:
• awareness of algorithms, understanding how they work and being able to critically evaluate algorithmic decision-making.
• skills to cope with, and potentially influence, what algorithms show them.
• explicit and implicit actions to curate algorithms and adjust browsing behavior.

==> algorithm education can be integrated as an essential part of MIL (rather than seen as a separate literacy, more like computational thinking rather than coding and computing)

Shin, D., Rasul, A. and Fotiadis, A. "Why am I seeing this? Deconstructing algorithm literacy through the lens of users", *Internet Research*, 32 4 (2022): 1214-1234
Dogruel, L., Masur P. and Joeckel , S. Development and Validation of an Algorithm Literacy Scale for Internet Users, *Communication Methods and Measures*, 16:2 (2022): 115-133.
Swart, Joelle (2021). Experiencing Algorithms: How Young People Understand, Feel About, and Engage With Algorithmic News Selection on Social

Competence framework for algo-literacy?

SAVOIR
DEVENIR

DigComp 2.2 (EU)

DIMENSION 1 • **COMPETENCE AREA**

1. INFORMATION AND DATA LITERACY

DIMENSION 2 • **COMPETENCE**

1.1 BROWSING, SEARCHING AND FILTERING DATA, INFORMATION AND DIGITAL CONTENT

To articulate information needs, to search for data, information and content in digital environments, to access them and to navigate between them. To create and update personal search strategies.

DIMENSION 3 • **PROFICIENCY LEVEL**

FOUNDATION	1	At basic level and with guidance, I can:	• **identify** my information needs, find data, information and content through a **simple** search in digital environments, • **find** how to access these data, information and content and navigate between them, • **identify simple** personal search strategies.
	2	At basic level and with autonomy and appropriate guidance where needed, I can:	• **identify** my information needs, • **find** data, information and content through a **simple** search in digital environments, • **find** how to access these data, information and content and navigate between them. • **identify simple** personal search strategies.
INTERMEDIATE	3	On my own and solving straightforward problems, I can:	• **explain** my information needs, • **perform well-defined and routine** searches to find data, information and content in digital environments, • **explain** how to access them and navigate between them, • **explain well-defined and routine** personal search strategies.
	4	Independently, according to my own needs, and solving well-defined and non-routine problems, I can:	• **illustrate** information needs, • **organise** the searches of data, information and content in digital environments, • **describe** how to access these data, information and content, and navigate between them, • **organise** personal search strategies.
ADVANCED	5	As well as guiding others, I can:	• **respond** to information needs, • **apply** searches to obtain data, information and content in digital environments, • **show** how to access these data, information and content and navigate between them. • **propose** personal search strategies.
	6	At advanced level, according to my own needs and those of others, and in complex contexts, I can:	• **assess** information needs, • **adapt** my searching strategy to find the **most appropriate** data, information and content in digital environments, • **explain** how to access these **most appropriate** data, information and content and navigate among them, • **vary** personal search strategies.
HIGHLY SPECIALISED	7	At highly specialised level, I can:	• **create** solutions to complex problems with limited definition that are related to browsing, searching and filtering of data, information and digital content, • **integrate** my knowledge **to contribute to professional practice and knowledge and guide others** in browsing, searching and filtering data, information and digital content.
	8	At the most advanced and specialised level, I can:	• **create** solutions to solve complex problems with many interacting factors that are related to browsing, searching and filtering data, information and digital content. • **propose new** ideas and processes to the field.

The project

ALGO-LITERACY AGAINST DISINFORMATION

This European project tracks and measures the influence of content recommendation algorithms on social media in Belgium, exposing how they can lead to mis-and disinformation. Its findings are used to create MIL Algo-literacy campaigns.

Website: Crossover.Social
Partners:

THE DASHBOARD

-Measures in real time the influence of recommendation algorithms on social media and search engines

-Detects potential disinformation campaigns
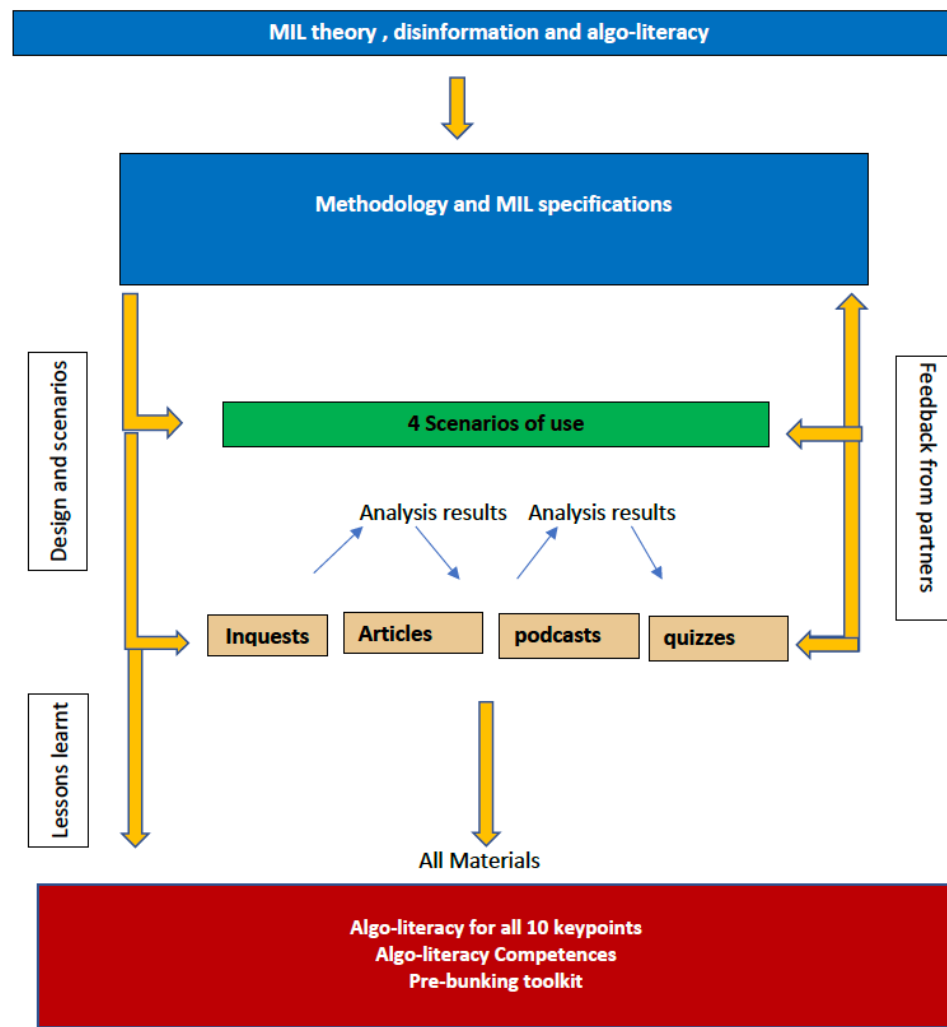
-Is used for online and field investigations

THE ALGO-LITERACY KIT

MIL Guiding principles

- Modular approach (plug-in)
- Authentic documents and examples
- Multi-stakeholder complexity
- Competence based (a working framework)
- Spirit of inquiry (how does it work, opacity vs transparency)
- Active, critical and reflexive learning
- A focus on information (not disinformation) and on uses and practices (stop amplification, not stop algorithms) + values

THE ALGO-LITERACY KIT

MIL workplan

MIL theory , disinformation and algo-literacy

Methodology and MIL specifications

Design and scenarios

4 Scenarios of use

Analysis results   Analysis results

Feedback from partners

Inquests   Articles   podcasts   quizzes

Lessons learnt

All Materials

Algo-literacy for all 10 keypoints
Algo-literacy Competences
Pre-bunking toolkit

THE ALGO-LITERACY KIT

Scenarios of use

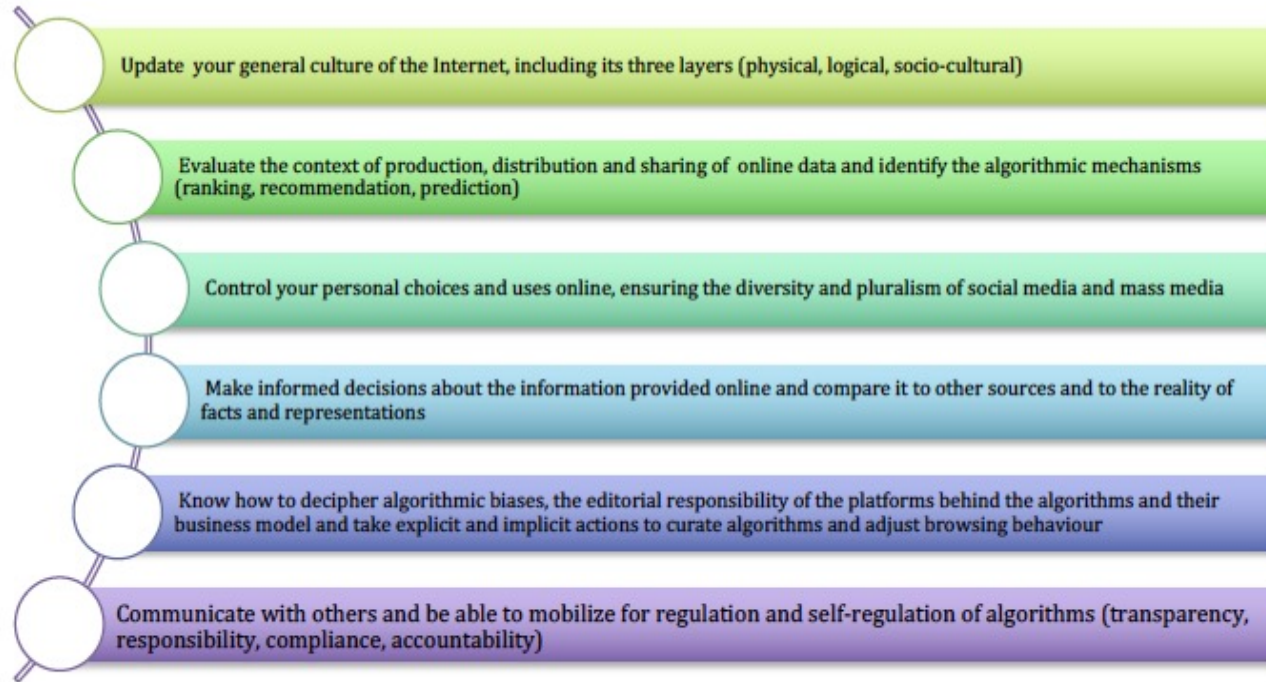| MIL algo-literacy matrix (that can be transferred to classroom interventions)				
Scenario of use	**Real life event**	**Algorithmic focus**	**MIL competences**	**Larger societal issues**
1				
Searching for fake news **and controversy** by **keywords on search engines**	**Article 1/Podcast 1**	FOCUS ON **RANKING ALGORITHMS** and SEARCH *What is a keyword, its use in information? Difference between a keyword and a hashtag?*	-Access information -Discover the editorial lines of search engines -Learn how to choose and use them better	Transparency of algorithms
2				
Searching for affinity communities, groups, influencers, actors via **# on social networks** (Facebook, Twitter, Instagram)	**Article 2/Podcast 2**	FOCUS ON **RANKING AND RECOMMENDATION ALGORITHMS** and PARTICIPATION and social networks TRENDS *What is engagement, how it affects ranking and dissemination, how communities influence trends…what is an echo chamber?*	-Understand the role of communities and influencers on information -Develop know-how to get more diversified information…	Manufacturing opinion consent/engagement
3				
Searching for trends and influential **accounts on** forums **(Reddit…)**	**Article 3/Podcast 3**	FOCUS ON **RECOMMANDATION ALGORITHMS** and ATTENTION *How prediction differs from recommendation, how it informs behaviour of algos (and users)?*	-Understand the economy of attention	Economics of attention /recommendation
4				
Searching for disinformation with a **smart tool** like Dashboard	**Article 4/Podcast 4**	FOCUS ON **ALGORITHMIC PREDICTION** And BIAS and PROPAGANDA *What about Neutrality of algorithms? How does the dashboard prove that algorithms change the information game and help understand the way they work?*	-Understand how algorithms can bias the information and push disinformation -Identify manipulations -Objectify the work of journalists	Data, big data and AI

THE ALGO-LITERACY KIT

as a modular set of ressources

- Podcasts on specific authentic information/disinformation cases
- Articles about the investigations
- Interactive quizzes (FR, FL, EN)
- Workshop plans

To run workshops with young people aged 15 +

Competence framework for algo-literacy ... and values?

- Update your general culture of the Internet, including its three layers (physical, logical, socio-cultural)

- Evaluate the context of production, distribution and sharing of online data and identify the algorithmic mechanisms (ranking, recommendation, prediction)

- Control your personal choices and uses online, ensuring the diversity and pluralism of social media and mass media

- Make informed decisions about the information provided online and compare it to other sources and to the reality of facts and representations

- Know how to decipher algorithmic biases, the editorial responsibility of the platforms behind the algorithms and their business model and take explicit and implicit actions to curate algorithms and adjust browsing behaviour

- Communicate with others and be able to mobilize for regulation and self-regulation of algorithms (transparency, responsibility, compliance, accountability)

Frau-Meigs, D. 2021 (for Crossover Project)

The results

MIL algo-literacy matrix (that can be transferred to classroom interventions)				
Scenario of use	**Real life event**	**Algorithmic focus**	**MIL competences**	**Larger societal issues**
1 https://crossover.social/podcast/crossover-podcast-episode-1-the-keyboard-fighters/				
Searching by **keywords** on **search engines** like Google keyword: Liberty convoy	**Article 1** 15/02/2022 **Podcast 1** 13/07/2022 **The keyboard fighters** Based on investigation looking at 'Freedom Convoy' threats to invade Brussels	FOCUS ON **RANKING ALGORITHMS** and SEARCH *What is a keyword, its use in information, difference between a keyword and a hashtag…* 	Analysis of mechanisms of disinformation and debunking process	Contrast between URL (virtual) and IRL (real) mobilizations
2 https://crossover.social/podcast/crossover-podcast-episode-2-dangerous-liaisons/				
Searching for affinity communities, groups, influencers, actors via # **on social networks like Youtube** Hashtag: RT Russia	**Article 2** **podcast 2** 03/11/2022 **Algorithms and propaganda : dangerous liaisons** Based on investigation looking at ban on RT during war in Ukraine and subsequent	FOCUS ON THE ROLE OF **PARTICIPATION** on social networks TRENDS *What is engagement, how it affects ranking and dissemination, how communities influence trends…what is an echo chamber* 	-Understand the economy of attention - Analysis of mechanisms of cyber-propaganda - Basic functioning of engagement and amplification via algorithms - State propaganda and algorithmic recommendation	Algorithmic "addiction" to state media that propagate disinformation

INQUIRY

SAVOIR DEVENIR

3				
https://crossover.social/podcast/crossover-podcast-episode-3-how-algorithms-changed-my-job/				
Searching for trends and influential **accounts on** forums such as Odysee Looking for personalities and influencers such as Dries Van Langenhove	**Article 3** **08/06/22** **Podcast** **17/01/2023** **How algorithms changed my work** Based on reflexive discussions about using algorithms to do algo-journalism And dealing with conspiracy theories	FOCUS ON **RECOMMANDATION ALGORITHMS** and ATTENTION *How prediction differs from recommendation, how it informs behaviour of algos (and users?)* 	-Understand the role of communities and influencers on information/disinformation -Develop know-how to get more diversified information...	**Economics of attention /recommendation**
4				
https://crossover.social/podcast/crossover-podcast-episode-4-algorithm-watchers-digital-fact-checking-prediction-algorithms-disinformation/				
Searching for disinformation with a **smart tool** like Dashboard Google auto-complete Keyword: Donbass	**Article 4** **29/09/2022** **Podcast 4** **22/02/2023** The Algorithm watchers Based on reflexive discussions on experience of developers using the Dashboard and interacting with other stakeholders	FOCUS ON **ALGORITHMIC PREDICTION** And BIAS and PROPAGANDA *What about Neutrality of algorithms? How does the dashboard prove that algorithms change the information game and help understand the way they work?* 	-Understand how algorithms can bias the information and push disinformation -Identify manipulations -Objectify the work of journalists - Using technical tools to fight disinformation - Uncovering the functioning of algorithms across platforms -dealing with digital fact-checking, prediction algorithms and disinformation	Bias, manipulation

REFLEXIVITY

THE WORKSHOP PLANS

FOR TEACHERS, EDUCATORS, YOUTH WORKERS, JOURNALISTS...

https://savoirdevenir.net/wp-content/uploads/2023/03/PREBUNKING-KIT-ENG.pdf

MODULE 1 - *THE KEYBOARD FIGHTERS*

PODCAST

	Soundcloud	https://soundcloud.com/crossover-social
Transistor	Transistor	https://share.transistor.fm/s/0963db07
	Apple Podcasts	https://podcasts.apple.com/us/podcast/crossover-podcast/id1634271082
	Spotify	https://open.spotify.com/show/2Y2j0RT7bSrxMofU0RCMfz
deezer	Deezer	https://www.deezer.com/show/3873807
amazon music	Amazon	https://music.amazon.com/podcasts/66f3ca06-e733-47e1-a674-5042bd255897/crossover-podcast
	Podcast Addict	https://podcastaddict.com/podcast/4023576
Google Podcasts	Google Podcasts	https://podcasts.google.com/feed/aHR0cHM6Ly9mZWVkcy50cmFuc2lzdG9yLmZtL2Nyb3Nzb3Zlci1wb2RjYXN0

More info on the podcast : https://crossover.social/podcast/crossover-podcast-e   Capture d'écran

TRANSCRIPTION

Version Française	https://savoirdevenir.net/wp-content/uploads/2022/08/Crossover-Podcast-Episode-1-transcript-french-.docx
English Version	https://crossover.social/podcast/crossover-podcast-episode-1-the-keyboard-fighters/
Nederlandse Versie	https://www.apache.be/2022/02/15/belgische-strijd-voor-vrijheid-importproduct

QUIZ

Version Française	https://savoirdevenir.net/quiz-podcastco1-fr/
English Version	https://crossover.social/quiz/quiz-the-keyboard-fighters/
Nederlandse Versie	https://savoirdevenir.net/quiz-podcastCO1-NED/

ARTICLE

Version Française « Le convoi de la liberté en Belgique est un produit d'importation »	https://savoirdevenir.net/wp-content/uploads/2022/09/Article-Convoi-Liberté-APACHE.pdf
English Version « The Belgian Freedom Convoy is an imported product »	https://crossover.social/the-belgian-freedom-convoy-is-an-imported-product/
Nederlandse Versie « De Belgische 'strijd voor vrijheid' is een importproduct »	https://www.apache.be/2022/02/15/belgische-strijd-voor-vrijheid-importproduct

SAVOIR DEVENIR

THE WORKSHOP PLANS

FOR TEACHERS, EDUCATORS, YOUTH WORKERS, JOURNALISTS...

https://savoirdevenir.net/wp-content/uploads/2023/03/PREBUNKING-KIT-ENG.pdf

+ transcript in English
+article by Apache

SAVOIR DEVENIR

CrossOver Interactive Quiz

Algorithms are at the heart of our information system, our relationships and our consumption. Do you know how they work?
Here are a few fill-in-the-blank texts with a list of suggestions to complete them. It's up to you to put them in the right place!

An algorithm is a finite and unambiguous sequence of [_____] and [_____] created by [_____] whose purpose is to solve a [_____], not unlike a [_____] used to prepare a dish.

operations
developers
recipe
instructions
problem

Check

Reuse   Embed

SAVOIR DEVENIR

06 :41 – 08 :17 Présentation du tableau de bord Crossover utilisé pour cette enquête	Le tableau de bord Crossover utilise des machines qui simulent l'activité d'internautes un peu partout en Belgique et qui ne sont pas détectées par Google, Facebook ou Twitter par exemple. Il permet, pour une liste de termes prédéfinis, d'étudier, pour les différents utilisateurs, les résultats et les recommandations des plateformes et les propositions d'auto-complétion lorsque l'on fait une recherche avec l'un de ces termes. Par exemple « Convoi de la liberté » propose en auto-complétion des termes comme « Ottawa » ou « Bruxelles 2022 ». L'outil est mis à disposition des journalistes, qui l'utilisent pour enquêter sur la base de ce que révèle le tableau de bord. Déployé en Belgique, il montre des disparités importantes dans les résultats de recherche entre les régions, très influencées par les Pays-Bas ou la France pour l'actualité.	Localisation, historique de navigation, type d'ordinateurs ou de téléphone influent les résultats de recherche et les recommandations de contenu. Les suggestions de recherche de Google (par ex, vous tapez « vaccin » et l'on vous propose « vaccination contre la variole du singe ») et l'ordre dans lequel sont présentés les articles de Google Actualités ou nos fils d'actus sur les réseaux sociaux nous incitent à consulter certains contenus plutôt que d'autres.	
08 :18 – 11 :25 Utilisation de cet outil et conclusions	A partir des hypothèses faites en utilisant le tableau de bord, et suivant surtout Twitter, YouTube et les groupes Facebook, la journaliste est allée enquêter sur le terrain. Elle en a conclu que le combat belge autour du Convoi de la liberté est avant tout un produit d'importation, alimenté en ligne par des médias français (RT France et France 24 sur YouTube) ou des Pays-Bas. L'enquête montre aussi une forte corrélation entre la mobilisation pour le convoi de la liberté et les discours et militants anti-vax.	Internet participe à une information transfrontalière entre pays de langue commune.	Vous informez-vous sur des médias étrangers ? Lesquels ? Pourquoi ?
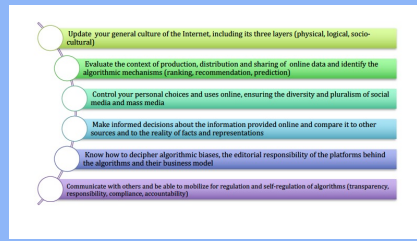
From domains of competences to micro-competences

Cultural/Communication (update culture and evaluate context of production, distribution…):
  Pay attention to emotions and how they are stirred by sensationalist contents and take a step back from "hot" news
  Fight confirmation biases and other cognitive biases
  Be suspicious and aware of "weak signals" for disinformation (lack of traffic on some accounts, except for some divisive topics; very little activity among and across followers on a so-called popular website or community, …)
  Know the new context of news production and amplification via algorithms

Search/Information (control uses, diversify services, compare sources):
  Set limits to tracking so as to reduce targeting (as less data are collected from your devices)
  Deactivate some functionalities regularly and set the parameters of your accounts
  Browse anonymously (use VPNs)
  Vary sources of information
  Be vigilant about divisive issues where opinion dominates and facts and sources are not presented
  Modify social media uses to avoid filter bubbles and (unsolicited) echo chambers

Operation/Resolution (decipher algorithms, biases, platform responsibility, and mobilize for transparency and accountability):
  Pay attention to RGPD and platform loyalty to data protection
  Mobilize for an increased regulation of algorithms, for more transparency about their impact
  Require social networks to delete fake news accounts, ban personalities, moderate contents
  Encourage the creation of information verification sites and use them
  Use technical fact checking tools like the Dashboard or InVID-Weverify
  Signal or report to platform or webmanager if denied access

TOWARDS TRANSLITERACY

ALGORITHMS FOR ALL
in 10 key points

Since algorithms, and in particular, those of search engines and social media, influence our information, our consumption, our relationships, and politics, citizens should know how they work and what their effects are.

This document presents synthetically the key points developed in Algo-literacy, a field part of Media and Information Literacy, essential to understand our media and our cultural universe and to try to regain control over our digital lives.

1 Algorithms are also created by humans
They are not elusive and mysterious forces coming out of nowhere
Even if some escape their creator, I try to understand their logic to master their impact

2 Not all algorithms are the same
On the information side, there are sorting, recommendation and prediction algorithms
Knowing them is part of my culture

3 We are all under algorithmic influence!
On social media, for example, recommendation algorithms highlight content that guides our information fare
I multiply my sources and also consult the radio, the written media, TV...

4 Not everything that is recommended is true
The first search results or suggested content are not always the most relevant
I don't stop at the first results, I diversify my search locations. Curiosity is the worst enemy of algorithms

5 Algorithms and fake news sometimes form dangerous relationships
By putting forward fakes and conspiracies that make the buzz, for example!
I warn the members of my community

6 Infowar can destabilize democracies
Online propaganda by foreign powers taking advantage of the properties of algorithms is increasingly common
A hot news topic? I'm wary of news that upset me

7 Algorithms are very smart at making profits
Their first objective is to capture our attention and make us stay online as long as possible
I only click on suggestions that really interest me

8 A bubble is comfortable. But it lacks air
Recommendation algorithms tend to narrow our horizons by offering us content that matches our tastes and opinions
I consult various sources of opinion and cultivate my critical thinking skills

9 Algorithms are also valuable for journalists!
Used properly, they are interesting tools for testing the temperature of public opinion, spotting trends and reporting about "online life"
Technology can be useful. I don't demonize algorithms!
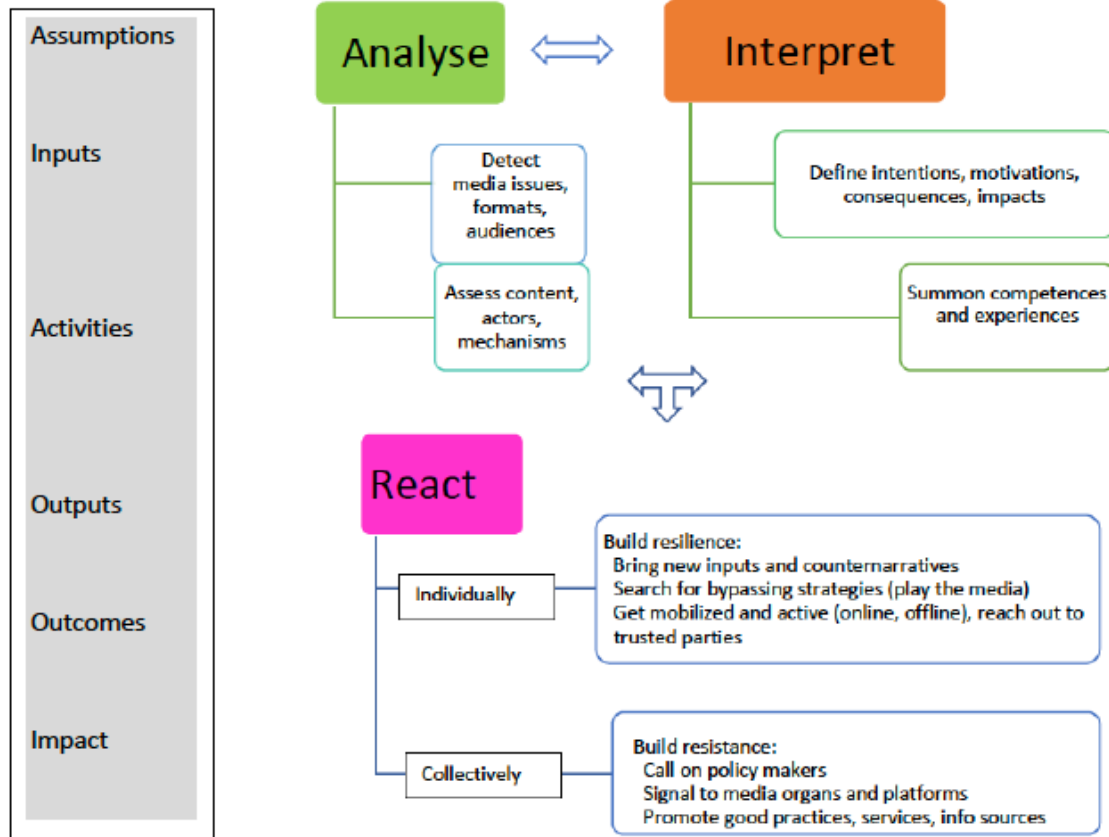
10 It's possible to act rather than cope
States, civil society and individual citizens can reduce the influence of algorithms on their information. And use them to fight against disinformation
Let's take action!

SAVOIR DEVENIR

SAVOIR DEVENIR

TOWARDS TRANSLITERACY

Conclusions : to enhance impact

Include algo-literacy in the training for MIL

Define and refine the framework for competences in algo-literacy

Provide easy-to-use examples and sensible practices

Increase transparency in algorithms AND in the use of algorithms : if they cannot be modified, modify their uses and practices

websites:
Savoirdevenir.net/projects
Crossover.social

Contact: divina@savoirdevenir.net