

WMO COMMISSION FOR HYDROLOGY

Community of Practice on Flood Forecasting

Marcelo Uriburu Quirno

13 - 17 November 2017

World Meteorological Organization

Geneva, Switzerland

Commission for Hydrology Recommendation

Based on the experiences of the last four years, the **Commission for Hydrology** found that **some** of the communities of practice had been **successful**, with a high level of participation and contributions, **others** had been useful just as a **repository** of material, and **some** had **not** awoken much **interest**.

One possible improvement would consist in creating a community of practice to cover **all the E2E chain** for flood forecasting: from data collection, management and quality control to modeling, forecast production and dissemination.

This **comprehensive** approach could be more **attractive** than that based on individual elements of the chain.

Revisit of the Focus Area 3 Work Plan

After CHy recommendation, the following activities were included in the AWG Focus Area 3 work plan

- Activity E): Implementation Strategy for the End-to-End Early Warning Systems (E2E EWS) for flood forecasting (using the Community of Practice approach)
- SubActivity E0): Establish CoP approach for FF



the combination of the two statements results in the challenge of

Establishing a Community of Practice on E2E FF

What is a Community of Practice?

A Community of Practice is a group of people who share a concern or a passion for something they do and who interact regularly to learn how to do it better (Etienne Wenger).

Communities of practice are formed by people who engage in a process of **collective learning** in a **shared domain** of human endeavour, e.g.:

- a band of artists seeking new forms of expression
- soccer moms and dads, who take advantage of game times to share tips and insights about the subtle art of parenting
- a group of engineers working on similar problems
- a network of surgeons exploring novel techniques
- **a group of hydrologists improving FF methods and sharing their findings**

What is a Community of Practice?

A group of people with a common interest

A group of people with a common goal of improving

A group of people who share experiences and look for solutions



What are not Communities of Practice?

Not everything called a "community" is a community of practice. A neighborhood, for instance, is often called a community but is usually not a community of practice.

A community of practice is different from a community of interest or a geographical community in that it involves a **shared practice**.

These are NOT communities of practice:

- A functional unit within a firm (MKT department, HR department)
- A business unit
- A project team (formed by people with different tasks and from different backgrounds)
- A network of people (a set of relationships, not of common practices)

A Bit of History

Communities of practice are not a new idea. CoPs were established:

- When we lived in caves and gathered around the fire to discuss strategies for cornering prey, or the shape of arrowheads.
- In ancient Rome, corporations of metalworkers, potters, masons, and other craftsmen had both a social aspect (members worshipped common deities and celebrated holidays together) and a business function (training apprentices and spreading innovations).
- In the Middle Ages, guilds fulfilled similar roles for artisans throughout Europe.

Every organization and industry has its own history of practice-based communities, whether formally recognized or not.

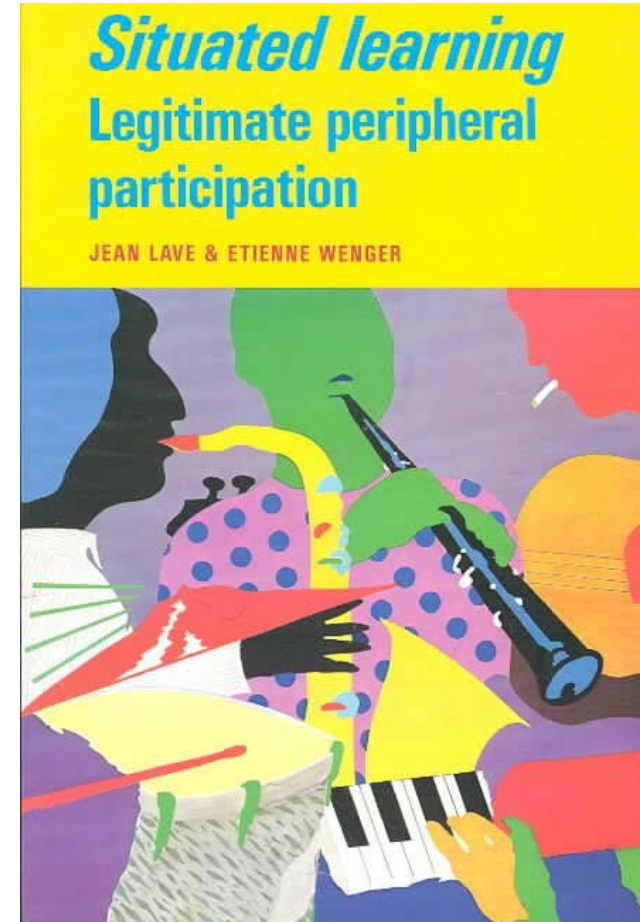


A Bit of History

However, the concept was only **recently** formalized. The term CoP was first used in 1991 by theorists **Jean Lave** and **Etienne Wenger** who discussed the notion of legitimate peripheral participation.

In 1998, Etienne Wenger extended the concept and applied it to other domains, such as organizations.

With the flourishing of online communities on the Internet, as well as the increasing need for improved knowledge management, there has been much more interest as of late in communities of practice.



1991

A Bit of History

ORGANIZATION SCIENCE
Vol. 2, No. 1, February 1991
Printed in U.S.A.

ORGANIZATIONAL LEARNING AND COMMUNITIES-OF-PRACTICE: TOWARD A UNIFIED VIEW OF WORKING, LEARNING, AND INNOVATION*

JOHN SEELY BROWN AND PAUL DUGUID

*Xerox Palo Alto Research Center and
Institute for Research on Learning, 2550 Hanover Street,
Palo Alto, California 94304*

The Xerox copier repair technicians should be viewed as an occupational community. They are focused on the work, not the organization, and the only valued status is that of full member of the community, that is, being considered a competent technician.

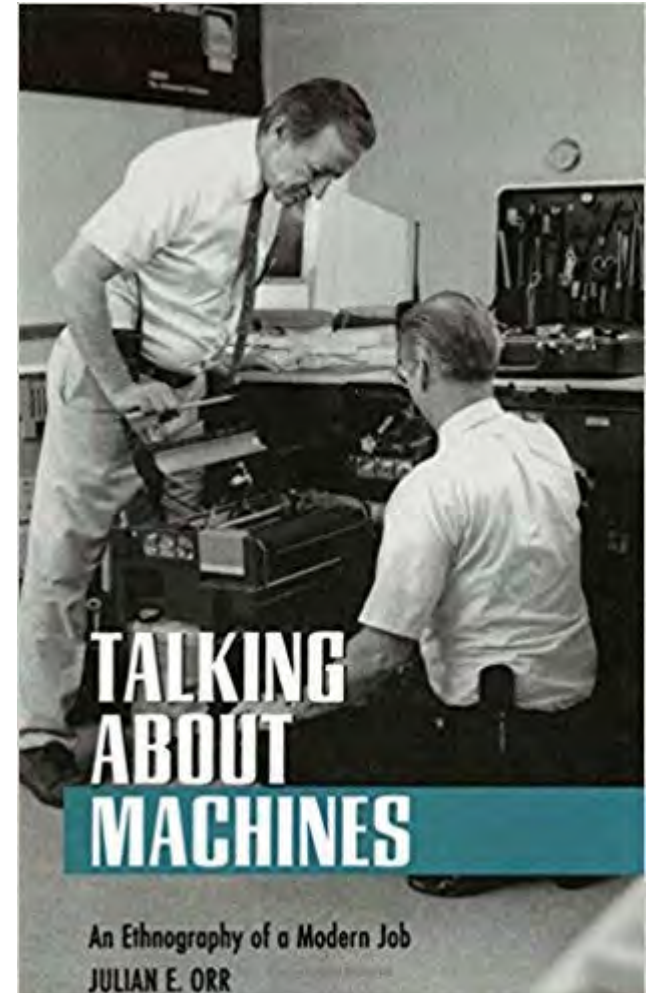
In pursuit of this goal, they share information, assist in each other's diagnoses, and compete in terms of their relative expertise.

Promotion out of the community is thought not to be worthwhile.

A Bit of History

“Talking about Machines: An Ethnography of a Modern Job” by Julian E. Orr

Anthropologist Julian E. Orr took the **Xerox case** as the **field work** for his Ph. D. thesis, from which his **book** arises.



Components of a Community of Practice



The domain: members are brought together by a **learning need they share**

The community: their **collective learning** becomes a bond among them over time

The practice: their **interactions** produce resources that **affect their practice** (whether they engage in actual practice together or separately).

Critical building blocks of a Community of Practice

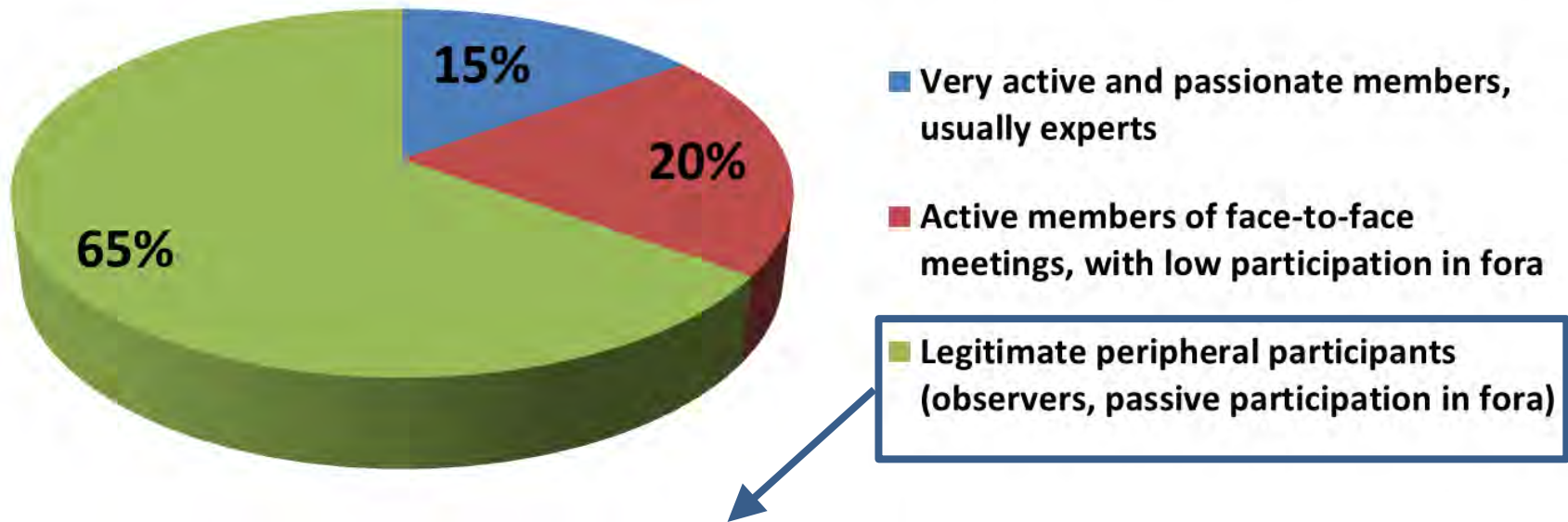
Every CoP is unique in how it creates a sense of community among its members. However, all CoPs share some essential features:

- **leaders/facilitators**
- **critical mass of active members**
- **resources**
- **problem-solving emphasis**
- **technology**
- **knowledge transfer and dissemination mechanisms**
- **trust among members**
- **passion for the shared domain**

A CoP has an identity defined by a shared domain of interest. Membership implies a commitment to the domain.

People see them as ways of promoting innovation, developing social capital, facilitating and spreading knowledge within a group, spreading existing tacit knowledge, etc.

Levels of Participation in a Community of Practice



Legitimate peripheral participation (LPP) describes how newcomers gradually become experienced members of a community of practice. Newcomers initially participate in simple tasks. Through peripheral activities, novices become acquainted with the tasks, vocabulary, and organizing principles of the community.

Gradually, as newcomers become old timers, their participation takes forms that are more and more central to the functioning of the community.

If newcomers can directly observe the practices of experts, they understand the broader context into which their own efforts fit. Conversely, if newcomers are separated from the experts, they have limited access to their tools and community and therefore have limited growth.

Examples of successful Communities of Practice

An international initiative in hydrology



About HEPEX

What is HEPEX?

HEPEX is a community of researchers and practitioners for hydrologic ensemble prediction. It is a community initiative with many people contributing and working on specific topics related to hydrological forecasting and hydrometeorological ensemble prediction.

HEPEX (for *Hydrologic Ensemble Prediction EXperiment*) seeks to advance the science and practice of hydrologic ensemble prediction and its usage for risk-based decision making by engaging in several ongoing activities, including:

View all posts about:
 ▼

Latest posts

- [Why are meteorologists apprehensive of ensemble](#)

<https://hepex.irstea.fr/>

Examples of successful Communities of Practice

An international initiative in hydrology



Anyone can join HEPEX. Open to the international community

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Examples of successful Communities of Practice



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2012 (45)

2011 (46)

2010 (32)

New Climate Preparedness and Resilience Community of Practice Established

Posted 6/19/2014



ALEXANDRIA, VIRGINIA. The U.S. Army Corps of Engineers USACE has established a new Climate Preparedness and Resiliency Community of Practice (CPR CoP) in the Engineering and Construction CoP.

"Any USACE personnel who regularly interact to learn, solve problems, build skills and competencies, or develop best practices around global and climate change issues should consider joining," said the Institute for Water Resources scientist and program manager Kathleen White, PhD, PE, and the Climate Preparedness and Resilience CoP's Lead. "Topics include climate preparedness and resilience, impacts, risks, vulnerabilities, adaptation, and integrating adaptation and mitigation."

Photos

1 of 1



Project Engineer Young Kim (right) discusses an item with a contractor May 7, 2014 during sand placement in Keansburg, New Jersey, an area severely eroded by Hurricane Sandy. The initiative is part of a larger effort by the New York District placing nearly one million cubic yards of sand onto three miles of shoreline along Raritan Bay to repair and restore the previously-engineered beach and dune there impacted by Hurricane Sandy. (Photo by New York District, U.S. Army Corps of Engineers)

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Examples of successful Communities of Practice

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Internal to the organization, only for USACE personnel

Examples of successful Communities of Practice

URBAN NOTES

Upgrading Experiences

THEMATIC GROUP ON SERVICES TO THE URBAN POOR



THE WORLD BANK WASHINGTON DC

Number 5 November 2002

Ayuda Urbana: Creating Communities on Urban Issues

Urban development policies in Central America and the Caribbean are critical for millions of people who live in hundreds of crowded cities. However, getting relevant and timely information and establishing a dialogue with others present difficult challenges...

Urban development policies in Central America and the Caribbean are critical for millions of people who live in hundreds of crowded cities. The quality of **transportation, water and sanitation, social services**, and more depends largely on the ability of local urban officials to analyze problems using information from reliable sources and to learn from the experiences of their counterparts in other cities in the region. However, getting relevant and timely information and establishing a dialogue with others present difficult challenges. The Ayuda Urbana initiative is a direct response to these challenges. By linking staff at municipal governments in **Guatemala City, Panama City, Havana, Managua, Mexico City, San Jose, San Salvador, San Juan, Santo Domingo, and Tegucigalpa**, it serves as a forum for sharing knowledge on pressing urban issues and priorities. What distinguishes Ayuda Urbana from other programs is that it originated from a request made in early-2000 by several mayors in the Central American and Caribbean region who recognized the value of collaboration across borders in addressing problems in their cities.

Examples of successful Communities of Practice

URBAN NOTES Upgrading Experiences

THEMATIC GROUP ON SERVICES TO THE URBAN POOR

THE WORLD BANK WASHINGTON DC November 2002

Ayuda Urbana: Creating Communities of Practice on Urban Issues

Regional scale: cities in Mexico, Central America and Caribbean countries (CAMEXCA)

Urban development policies in Central America and the Caribbean are critical for millions of people who live in hundreds of crowded cities. However, getting relevant and timely information and establishing a dialogue with others present difficult challenges...

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Examples of successful Communities of Practice



ST. LOUIS DISTRICT

US Army Corps of Engineers

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Errett named Hydrology, Hydraulics and Coastal Community of Practice Professional of the Year

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Posted 4/20/2017

Release no. 17-021

Contact
Amanda Kruse
314-331-8095
Amanda.L.Kruse@usace.army.mil

Photos 1 of 1



St. Louis District Hydraulic engineer and Water manager received the 2017 Hydrology, Hydraulics and Coastal Community of Practice Professional of the Year award for the positive impact his service and water

Examples of successful Communities of Practice

The screenshot displays the 'MCH User Community' website. At the top left is the WHO OMM logo. The main header is 'MCH User Community'. Below it is a navigation breadcrumb: 'Home > My communities > Databases > MCH'. A left sidebar titled 'Navigation' lists: Home, My home, Site pages, My profile, Current course, and MCH (expanded). Under MCH, there are links for Participants, Badges, General, About MCH, Updates, Installation, Tutorials, Frequently asked questions, Additional modules and Development tools, Learn more, and My communities. The main content area is titled 'Meteorological, Climatological and Hydrological (MCH) data base management system'. It features eight 3D icons representing different sections: 'About MCH' (person with 'i'), 'Updates' (person with wrench), 'Installation' (gears), 'Tutorials' (person at laptop), 'Forum' (group of people), 'FAQs' (person with question mark), 'Additional modules' (person with green cube), and 'References' (stack of books). A small 'MCH forum' icon is at the bottom left of the main area.

158 participants

Examples of successful Communities of Practice



MCH forum

Re: Data Availability Query
by [Shawn Boyce](#) - Monday, 29 May 2017, 3:48 PM

Dear Slobodan,

Ideally I would like the same output produced by Editing and Calculations > Editing Data > Availability of Data. Essentially, I would like to know the number of days with missing data or percentage missing days for stations in a defined group.

It would be useful I believe to include such a feature for detailed data in MCH.

Regards,

Shawn

Q&A

[Show parent](#) | [Reply](#)



Re: Data Availability Query
by [Vladimir Trkulja](#) - Monday, 29 May 2017, 6:32 PM

Dear Shawn, maybe this can help.

[Count missing data.pptx](#)

In first query from presentation we count every single day which is missing one or more hours per day.

And in this line of query add stations from groups - **Station IN('14542','14668','14545','Etc')** and in result you get missing days for all stations in group per years.

In second query per stations and years.

Best regards, Vladimir

[Show parent](#) | [Reply](#)



Re: Data Availability Query
by [Vladimir Trkulja](#) - Tuesday, 30 May 2017, 1:16 PM

```
Select COUNT(DAYS) AS 'No.Days', YEAR as 'IN YEAR'  
FROM(  
SELECT s.Station, DAY(t.Datee) AS DAYS, MONTH(t.Datee) AS MONTHS, YEAR(t.Datee) AS YEAR, COUNT(t.Valuee) AS Hrs  
FROM dttemperature t JOIN stngroups s ON t.Station=s.Station  
WHERE StnGroup='Name of StnGroup'  
GROUP BY s.Station, YEAR(t.Datee), MONTH(t.Datee), DAY(t.Datee)  
ORDER By s.Station, YEAR(t.Datee), MONTH(t.Datee), DAY(t.Datee) )tb  
WHERE Hrs<'24' GROUP BY YEAR;
```

Scripts, pieces of code, consistent with CoP philosophy: it's not just analysis or recommendations but SOLUTIONS

[Show parent](#) | [Reply](#)

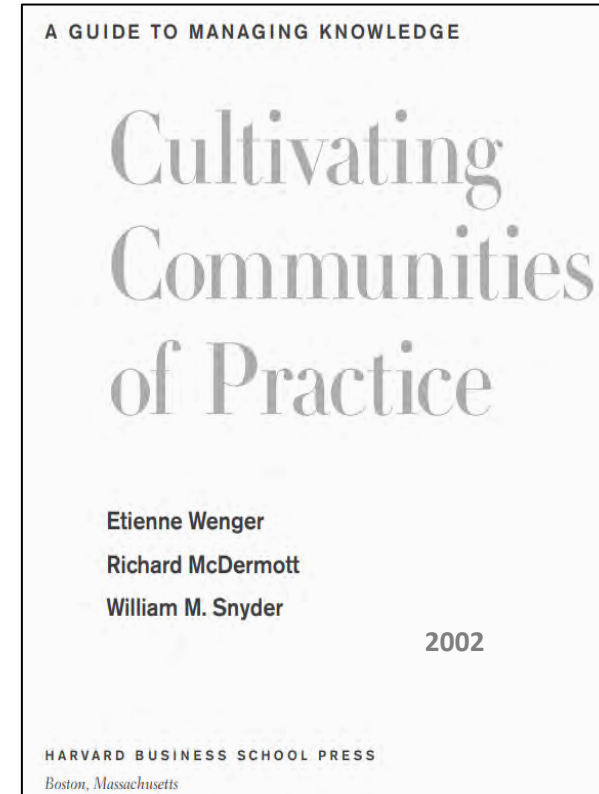
Challenges for *Cultivating* a CoP

Implementation challenges

- Much more difficult to establish a CoP from scratch. It is better to identify already existent CoPs, even if they are at an initial stage.
- A facilitator is always required. The facilitator must be a highly respected member of the CoP
- Recruitment of members
- Virtual platforms must be very user-friendly, intuitive, and adequate for dynamic participation of the members

The challenge of keeping CoPs alive (grow & sustain)

CoPs do not have a specified life span. Some fizzle out due to apathy and inactivity. Others become stronger. The key factors in how a CoP develops over time is the quality and durability of its building blocks



Technology and Communities of Practice

Technology is a critical building block

However, its role should not be overestimated and should be viewed as a **support** to the social aspects of sharing knowledge (building trust, personal communication, and meeting face-to-face).

To be effective, technology should be adapted and customized to the needs of the community.

The best technology usually involves tools that help community members find, disseminate, and apply knowledge and enhances communication among them.

Can a CoP exist only as a virtual entity?

It is unlikely that online interaction is sufficient for a CoP since it cannot substitute entirely for **face-to-face events** that create much of the trust and common purpose within a community.

Although online tools can greatly **enhance communication and cohesion**, they **do not by themselves constitute community**.

Face-to-face events are vital, particularly in the early stages of a community. These events are largely responsible for fostering and personalizing the links between members.

ICTs

Expand geographical boundaries. Add flexibility to the organization of time. Provide visibility to shared practices.

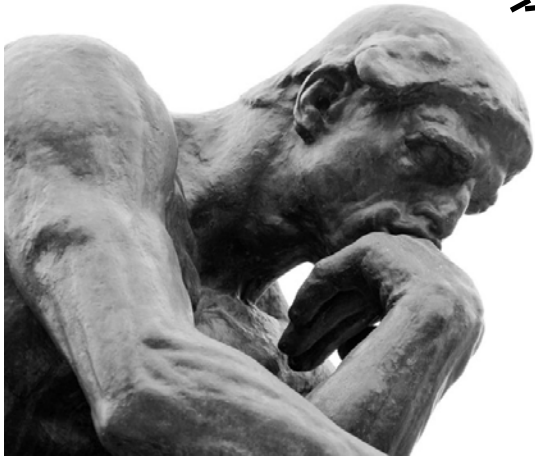
Building the blocks of Our Community of Practice

- **leaders/facilitators**

Who is/are going to be the leader/s?

Someone from:

- **CHy AWG?**
- **TTs?**
- **A well developed NHS?**
- **OPACHE?**
- **Academia?**
- **...?**



Building the blocks of Our Community of Practice

- **recruitment of critical mass of active members**

- **Where should a critical mass of members be found?**
- **How are they going to be summoned?**
- **How is the CoP going to be advertised?**



Building the blocks of Our Community of Practice

- **technology**
- **knowledge transfer and dissemination mechanisms**

What is the most convenient SW / Platform / system for our CoP?

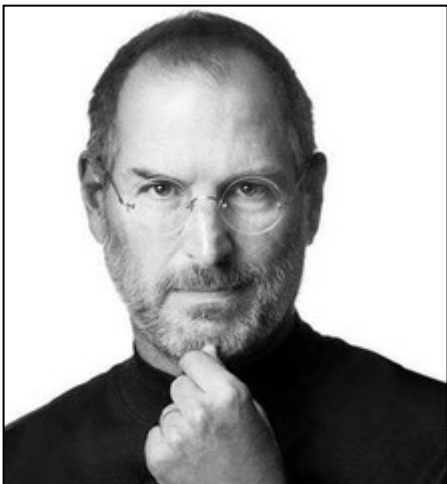
- **MOODLE?**

(Moodle is a free and open-source software learning management system)

- **ALFRESCO?**

(Alfresco software, an open-source content-management system)

- **SUGGESTIONS?**



Other things to discuss (and understand)

- Linkages with FFI projects and demo-projects (FFGS, CIFDP, SWFDP)
- How the CoP can advance and provide support to End-to-End Early Warning Systems (E2E EWS) development, particularly on Assessment Guidelines and Interoperable Technologies.

Path forward

- Action Items, Timelines and resource Requirements
- Work Plan Development
- Steps of Implementation of the CoP

Thank you for your attention