



image by [opensourceway](#)

Knowledge Exchange is exploring the rich field of open knowledge in order to help our partners effectively achieve their objectives. To this end, scoping sessions took place during 2013 with experts, and their views are presented in this discussion paper.

## OPEN KNOWLEDGE

*"If you have an apple and I have an apple and we exchange these apples, then you and I will still each have one apple. But if you have an idea and I have an idea and we exchange these ideas, then each of us will have two ideas."*

*George Bernard Shaw*


With the added ingredient of digital technology, Shaw's vision for doubling, trebling and quadrupling ideas has never been so promising. 'Open knowledge' is the power to promote fast, creative innovation by allowing an idea to leave your hands. Essentially, something is 'open' if anyone is free to use, reuse and redistribute it — subject only, at most, to the requirement to attribute the author and/or a share-alike license. You can read more

definitions about open on [opendefinition.org](http://opendefinition.org). [Daniel Mietchen](#) of the Open Knowledge Foundation says, "Open should apply to all components of the research process, and not be restricted to the outcomes. Open will need to be embedded in the research process from start to finish."

## WHY OPEN KNOWLEDGE?

Being open is about combining materials, tools and people to support that innovative spark. Open knowledge supports:

- **Democracy** – [Rachel Bruce](#), Jisc's innovation director for digital infrastructure, says, "Open is important for the public ethos and the public purse, getting people to participate - this means using people's power." The commitment to open is a priority for the 60 participating countries in the [open government partnership](#).
- **Reputation** - we trust people who are honest about where their ideas come from. But sharing can also show off an organisation's assets, such as an open online course run by a university.
- **Quality** - you can check and judge someone's work much more easily if it is linked to its sources. [Wikipedia](#) is an example of how being open can enhance reliability, especially over time.
- **Re-use** – whether in higher education, research or industry, people can build on open information more efficiently, not least because it's easier to find. The crowd-sourced [OpenStreetMap](#) claims to help people use geographical information in creative, productive, or unexpected ways.



"Many governments regard their national science base as a crucial contributor to the future wellbeing of the nation. But is business effectively exploiting the opportunities opened up by data-intensive science?"

*[Science as an open enterprise](#), Royal Society, 2012*

## UNDERSTANDING THE OPPORTUNITIES

[Leo Plugge](#), executive secretary of the Scientific Technical Council at Stichting SURF, agrees, "Mechanisms of open creation offer opportunities to work and exchange with other sectors – research, cultural heritage and government."

[Mogens Sandfær](#), manager at the Technical University of Denmark, agrees that open knowledge principles can form a bridge between different organisations. "True collaboration requires an increase of openness, to create better proposals and solutions," he says. "We simply can't afford to not open up. In reality it is about survival."

However, there are cultural and technical issues to be overcome, not least financial ones. "We may be easily persuaded about the benefits of open, but the practice is different," says [Hans Bennis](#), director of the Meertens Institute at the University of Amsterdam. "People hold knowledge to themselves or want to make money from knowledge."

Currently, the competitive environment encourages researchers and employees to seek protection against the theft of their ideas, which they do by locking down work behind patents and intellectual property rights. Legal consultant [Arthur van der Molen](#) agrees that legislation can help build the right culture. He says, "We need to enforce openness as there will not be sufficient incentives."

A further challenge is that open access (OA) as a publishing model remains new for publishers and users. There is uncertainty over derivative works and how to licence them; over the rules that apply to text mining; and about

whether to choose the green or gold routes<sup>1</sup>. Anyone paying for open access publishing also faces the contradiction that the more open the license, the higher the price for publishing.

Bennis suggests some solutions to help build confidence: “New OA journals do not easily thrive in competitive environments. I try to convince existing journals to transform into OA ones, or have an OA counterpart. In my own organisation I do not encourage researchers to pay commercial vendors/publishers for Open Access publication – I encourage them to publish pre-print versions in open access directories.” Where work has been funded specifically to exist on an OA platform, openness has in fact been less successful. But where people volunteer to work in an open way, they have been more able to connect with varied sources.

## A VISION FOR THE FUTURE

People won't change the way they work unless the conditions are right. Bennis says, “The European Commission is on the right track, investing in infrastructure. That means you build roads – not fancy cars that will be on the road – and gradually you design the rules. The same goes for data: we need to build the digital infrastructure right now.”

Rather than turning the whole information ecosystem on its head, there's a way forward which influences individual components to help individuals work in a more open manner. Van der Molen explains, “A hopeful development is universities that do both: publish pre-print versions of research in open repositories and publish in commercial magazines as well.”


Sandfær says, “Opening up data sets needs to be handled in an international context, beyond national thinking.” It may involve surprising collaborations. “Innovative work should sometimes come from private funding,” he explains. “In practice new inventions and developments from the private sector are not fully controlled by one particular enterprise, and to a certain extent can even be called 'open'.”

## WHAT CAN I DO TODAY?

Bennis says, “Just do it: don't go out making plans or spend time convincing yourself that open is good. Get out and about and show new things to others – convince them there's another way.”

If you create content:

- Use **machine readable formats** for your information to increase its commercial value and accessibility.
- Encourage people to **exploit systems that promote collaboration** eg. [GITHUB](#), the platform for shared code building
- Don't go it alone - find a **shared vocabulary** for tagging and metadata
- **Produce non-static reports** which are easier to check and peer review



“Engage with actual and potential users and re-users of the data as early and as often as you can, be they citizens, businesses or developers.”

*Open Knowledge Foundation, 2013*

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<sup>1</sup> For an explanation on the Green and Gold routes to Open Access see <http://www.jisc.ac.uk/whatwedo/topics/opentechnologies/openaccess/green-gold.aspx>

If you publish content:

- Publish on a **federated repository**, not an enclosed platform
- **Use an unambiguous standard** to inspire confidence, such as [CC-BY](#)
- **Encourage a mix of commercial and free content** – such as the balance on the [Association for Computing Machinery](#)

If you fund content:

- **Build solutions for an infrastructure**, looking to the US for inspiration e.g. [the Sloan Foundation](#)
- Encourage the use of **non-proprietary software**
- Reward projects that **build openness into their workflows** to show that it is the first expectation, not an add-on
- **Start a dialogue with companies** to help break down resistance to being open

If you need support:

- **Get some training:** the Open Knowledge Foundation runs [training programmes](#) or get in touch with your local Knowledge Exchange partner

Open is the intelligent way to work, but it's still new, and without precedent. Van der Molen urges, "Seize opportunities at the right moment, like an alligator that snaps when an animal comes near the water." If we want the future to be open, we all have to work fast and hard to create it that way.

## WHAT IS THE KNOWLEDGE EXCHANGE DOING?

As a first step, we're working to improve the dialogue in our partner organisations and their countries. We will share our current awareness of open knowledge and we will also explore better use of open knowledge as a driver. We're working on recommendations from the [e-infranet policy paper on open](#), prioritising knowledge about rights, and potential use of data.

Meanwhile, at the strategic level, we recognise both the [Open Knowledge Foundation](#) as a creative and valuable force and funders as vital stakeholders in the open knowledge landscape. Furthermore Knowledge Exchange will continue to act as a broker to make certain that specialists and scientists are together at the table. We want to bring the voices of governments, industry and cultural heritage organisations together to ensure that openness becomes integral to how people work.

Mietchen says, "The higher education and research ecosystem will need to change as funding flows and reward systems do not presently support 'open'."

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With thanks to Hans Bennis, Rachel Bruce, Daniel Mietchen, Arthur van der Molen, Leo Plugge and Mogens Sandfær for sharing their views and Nicola Yeeles for writing the text.

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**Knowledge Exchange is a co-operative effort that supports the use and development of Information and Communications Technologies (ICT) infrastructure for higher education and research.**



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