

## KNOWLEDGE FEDERATION PROTOTYPE: TESLA AND THE NATURE OF CREATIVITY (TNC)

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**Abstract.** Prototype *Tesla and the Nature of Creativity* (TNC) is being developed as a showcase example of Knowledge Federation. *Motivation:* One of the points of this work is to show that IT innovation can – or better said *already has* expanded to systemic innovation; and how exactly this type of work might be done with available technical tools. *Use case:* DR, as an author of the article *On nature and control of creativity – Tesla as a case study*, has been focusing on quantum nature of creativity of arguably the greatest creative genius in electrical engineering of all times, Nikola Tesla, as case study; if his result should have the sort of impact it can and needs to have, it will have to be federated. DK, as a federator in Knowledge Federation, received the article and recognized its potential for making an impact: (i) collective creativity may indeed be the key function of the agile and transformative collective mind we have undertaken to co-create, (ii) it bears upon the theme of (foundations for) truth and worldview creation, by challenging the paradigm of classical cognitive science and by offering a way to extend it into a paradigm based on quantum epistemological insights. *Transforming a research article into an accessible multimedia object:* The substance of DR's article – model of direct creativity – is written in the language of quantum physics, and is therefore not accessible to non-specialist readers. The first step in federation was to extract from DR's article, and his other articles and experience, a simple visual model of how direct creativity works and how it might be controlled and used – expressed in conventional, rather than quantum-physics metaphors. The second step was to extract from this model certain general key ideas – a general idea contribution of this work. A result of this initial phase of federation was to show how a conventional research article may be turned into a multimedia object, with idea maps, recorded interviews with the author providing additional explanation, navigation structure, text annotations... Once the socio-technical system for presenting academic information has been designed and tested in this way, *suitable* information technology may be developed by IT industry. *Presenting, connecting and crowdsourcing ideas online:* In the second phase of federation certain ideas are selected from the article, along with their relationships, and made available online to community of interest or the global community, by using the Cohere platform. *Changing the public mind through a dialog:* A goal of this final stage of federation is to bring the key, transformative ideas to public awareness. To that end, we create a dialog including community's opinion leaders and media people. The dialog begins in physical space and continues on Internet and in the media. Our physical dialog aims to further develop David Bohm's dialogue technique by combining it with a therapeutic strategy called 'intervention.' *Conclusions:* Coming back to the insight "knowledge work has a flat tire" which we named as motivation, we can now see contours of a remedial procedure – one capable of combining together researchers, and general public, to organize relevant resources together and produce a reliable worldview-changing or direction-changing insight or *gestalt*. Our vision is a global knowledge-work game-like environment, a true global mind. A goal of Knowledge Federation is to evolve a general-purpose systemic 'game-changing game,' an environment where habitual ways of doing knowledge work, and perhaps any other kind of work, can be changed in a meaningful way.

**Keywords:** *knowledge federation, systemic innovation, holistic informing, knowledge work that works*

## 1. Introduction

In [Introducing Knowledge Federation](#) [1] we explained what knowledge federation is and what it can do. But for many of us the best introduction is by example – by seeing knowledge federation in action. TNC Prototype [Tesla and the Nature of Creativity](#) [2] is being developed as a showcase example of knowledge federation.

This is work in progress; examples have only as much substance as is necessary to illustrate the federation procedure – which is our main interest here.

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## 2. Motivation

One of the points of this work is to show that IT innovation can – or better said *already has* expanded to systemic innovation; and how exactly this type of work might be done with available technical tools.

But an even more relevant motivation is that "knowledge work has a flat tire" – i.e. that our situation calls for stopping the business as usual and taking care of systemic issues in knowledge work that may render our best knowledge work efforts futile.

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## 3. Use Case

[Dejan Rakovic](#) (DR) in the Role of an Author, has been focusing on creativity of arguably the greatest creative genius in electrical engineering of all times, Nikola Tesla, as case study. What attracted DR to this theme was that its perplexing phenomenology could be understood with the help of to him familiar paradigm of quantum physics. A number of years of research resulted in a model explaining how the formation of Tesla-style deep creative insights might work and how it might be developed and controlled. Although DR's results were published in a number of research articles and books, and contrary to their large potential impact on research in other fields and on our society at large (explained below), they remained accessible only to a relatively small circle of experts – cognitive scientists who understand quantum physics. Having heard about Knowledge Federation, DR decides to join it and to have his work federated. He joins the Knowledge Federation 2010 workshop in Dubrovnik, and presents his work in a concise article consisting of a description of genealogy and phenomenology of Tesla's creative insights, rendered mainly in Tesla's own words, excerpts from his journal, and an outline of an explanatory model, written largely in the vernacular of quantum physics: [On Nature and Control of Creativity - Tesla as a Case Study](#) [3].

[Dino Karabeg](#) (DK) in the Role of a Federator, receives the article and recognizes its potential for making an impact. Earlier in Knowledge Federation we have been focusing on collective intelligence. But collective *creativity* may indeed be an even more important function of the agile and transformative collective mind we have undertaken to co-create. Is DR's work showing us a way to enable collective creativity through systemic solutions in game-changing ways? Could we (as society) be creating far more creative geniuses of Tesla's caliber than we presently do? (Think what this might do for the world problematique...!) Are we inhibiting this creation routinely, because we have misunderstood the nature and the dynamics of creativity? A brief [dialogue within the Knowledge Federation community about this theme](#) [4] revealed that this indeed might be the case. Besides, DR's work bears upon the theme of (foundations for) truth and worldview creation – which is central in Knowledge Federation – by challenging the paradigm of classical cognitive science and by offering a way to extend it into a paradigm based on quantum epistemological insights.

For us in Knowledge Federation DR's idea plays the role of *potentially* "an idea worth spreading," i.e. as a place holder for any such idea; the idea could have been just as well about the climate change, or about the global economy. We want to use this idea to build around it a system for verifying and spreading *any* such idea, but bear with us: This is only our first step. In it, to use our legal metaphor, we will have to be both the judges and the lawyers; we will both present DR's work and build a system by which it may be tested. In a final solution, of course, those roles will be more carefully designed and divided. Help us do that, by providing comments.

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#### **4. Transforming a Research Article into an Accessible Multimedia Object**

The substance of DR's article – model of direct creativity – is written in the language of quantum physics, and is therefore not accessible to non-specialist readers. The first step in federation was to extract from DR's article, and his other articles and experience, a simple visual model of how direct creativity works and how it might be controlled and used – expressed in conventional, rather than quantum-physics metaphors. The second step was to extract from this model certain general key ideas – a general idea contribution of this work (those will be worked on further in the further steps, as explained below).

A result of this initial phase of federation was to show how a conventional research article may be turned into a multimedia object, with idea maps, recorded interviews with the author providing additional explanation, navigation structure, text annotations... by using available technology (we are making steps towards 'World of Warcraft-style' academic communication, i.e. towards the use of contemporary media!). Once the socio-technical system for presenting academic information has been designed and tested in this way, *suitable* information technology may be developed by IT industry.

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#### **5. Presenting, Connecting and Crowdsourcing Ideas Online**

In the second phase of federation certain ideas are selected from the article, along with their relationships, and made available online, by using the Cohere platform [5].

Here we show a procedure (to be performed by a community of interest or the global community) by which:

- ideas are freed from the codex of a discipline and made available online,
- ideas are interlinked with other related ideas, and with supporting or contradicting resources,
- questions and critical concerns are linked with ideas to solicit further details from the author or the community,
- key general insights or *gestalts* are distilled from interlinked ideas,
- ideas and "gestalts" are submitted to a democratic deliberation process online, and allowed to either acquire or lose credibility, and to eventually become community views,
- *gestalts* and related insights and documents are brought to the attention of specific communities of interest to which they might be relevant,
- *gestalts* and related insights and documents are made available to journalists, and to general public.

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#### **6. Changing the Public Mind through a Dialog**

A goal of this final stage of federation is to bring the key, transformative ideas to public awareness. To that end, we create a dialog including community's opinion leaders and media people. The dialog begins in physical space and continues on Internet and in the media. Our physical dialog aims to further develop David Bohm's dialogue technique [6] by combining it with a therapeutic strategy called 'intervention' [7].

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## 7. Conclusions

Coming back to the insight "knowledge work has a flat tire" which we named as motivation, we can now see the contours of a remedial procedure – one capable of combining together researchers, and general public, to organize relevant resources together and produce a reliable worldview-changing or direction-changing insight or *gestalt*.

The point here is, however, not that we have a solution, but to foster a social process capable of producing solutions of this kind – and improving them indefinitely – which is what Knowledge Federation really is.

What has been shown above is a procedure (a variant of 'knowledge federation') that complements conventional article publishing and the conventional focus on knowledge *production* in general, by

- translating the models, ideas and insights from an academic specialization into general, accessible language,
- making ideas accessible online, linking them with related ideas and resources, and further annotating, evaluating,
- evolving general insights or 'gestalts',
- making those insights known to the communities that may need them,
- making key insights and accompanying media material available to journalists and to general public,
- bringing transformative ideas into media and public awareness through a dialog.

A question that remains is – how will such procedures be brought into actual practice? And by whom?

An intention behind developing this prototype is to show that this is already being done. While our children use sophisticated animated tools to collaborate online and in real time with friends worldwide - while playing World of Warcraft - we serious knowledge workers still work alone or in small teams, write old-fashioned articles and publish them in old-fashioned books and magazines, which will be placed on a book shelf. This situation obviously won't last. Our vision is a global knowledge-work game-like environment, a true global mind. But how will this new collective mind be developed? And by whom? Obviously, no game design company can design 'academic game' or 'public informing game'.

A goal of Knowledge Federation is to evolve a general-purpose systemic 'game-changing game,' that is, an environment where habitual ways of doing knowledge work, and perhaps habitual ways of doing any other kind of work, can be changed in a meaningful way. The final goal of this collaborative game is to change the knowledge work culture and practice.

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