

Retrovation – the Concept of a Historical Innovation

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[historical innovation retrovation](#)

Jaakko Suominen

jaakko.suominen[a]utu.fi

Professor

Digital Culture

University of Turku

Anna Sivula

anna.sivula[a]utu.fi

Professor

Cultural Heritage

University of Turku

The overview introduces the concept of “retrovation.” The concept refers to an innovation that utilizes knowledge concerning the past. A retrovation is an innovation created for the intentional use of historical knowledge in the revivification of an object or for providing a new meaning or purpose for it. The aim of the overview is to reflect upon the theoretical as well as more practical possibilities of retrovation, and to create an overview of the various examples of retrovations. [\[1\]](#)

Solutions from Surprising Directions

”Even though we have been surrounded by trails of past practices, scattering, transformation and possible rebirth of practices is somewhat unmapped area in research. Contrary to natural fossils, societal fossils can rise again, if we think about, for example, penmanship’s and ballpoint pen’s role in personal remembrance.”

(Pantzar & Shove 2006, 23–24. Translation JS)

During WW2, the Allies and the Axis competed in the development of cypher systems. For example, Germany trusted in its Enigma coding device, but by the end of the war the Allies could decode its messages as they had devoted a significant amount of labor, as well as developed new electro-mechanic computing technology, and were able to discover at least some of the technical principles of German cypher machines. Coding technologies are examples of innovations whose development was fostered during the war.

With regards to other coding systems, the USA utilized a technique that was a sort of reverse innovation. The US Navy recruited Native Americans who spoke rare and almost dead languages.

The coding system based on e.g. Navajo languages, was a challenge for the Axis states. Even though the German intelligence service had prior knowledge of the technique based on the experiences of the first Great War, and even tried to sneak some cultural anthropologists into the USA to learn Native American languages, the variety of languages and dialects made the learning tough work, and the code was not deciphered. The story above, formed based on a [Wikipedia article](#), is a historical description of past innovation practices based on history.



Image 1. Navajo code talkers in Saipan, June 1944. Public Domain photo.

The past hides many resources, and history is the knowledge about the past. History reveals the hidden resources of the past, and therefore is not only used for remembering the past but also for the orientation of the future. History is usually presented as a form of a story that can be organized in many different ways: it can be a success story leading to the present situation; likewise, it can be a detective story examining unsolved cases; or it can be an expedition exploring technological, social or cultural possibilities that were not utilized in the past. We use many forms of historical knowledge, including historical facts, historical understanding, historical explanations and historical narratives, for orientating towards the future. (Sivula 2010, 33–35; Sivula 2012, 433–434; [Sivula 2014](#), 29; Sivula 2015, 64–66.)

How could we use the example of Navajo code talkers when orientating towards the future? How is this example connected to expeditions that explore the possibilities of the past? The cypher technique based on Native American languages could be referred to as, instead of an innovation, a *retrovation* (from retro+innovation or French retrouver, rediscover). “Re-” points to the fact that something has happened again and “-trovation” indicates finding. Retrovation can refer to a product, service or a production method that is based on forgotten resources and broken chains or lost trails. Retrovation then means, an innovative translation of the object from the past in such a way that it will be appropriated in a new use. Retrovation is at that point an innovation that uses historical knowledge.

There are two kinds of retrovations. On one hand, we may connect an object of the past to a new purpose and thus, create a retrovation. On the other hand, we would be able to revive or resurrect an artefact or a practice in the new context in such a way that it maintains its connection to the original purpose of the artefact. (Sivula 2012.) The cable reel used as a table in the picture below, is an example of the first type retrovation. A new wet plate photo, produced with a technique already invented in the mid-1800s, but circulated nowadays on social media and introduced as a contrasting photo experience compared to digital instant photography, may act as an example of the second type of retrovation.



Image 2. Nokia cable reels used as tables in Pelaa! [Play!] gaming arts and culture exhibition in Salo Art Museum 2009. Photo: Petri Saarikoski.



Image 3. A contemporary wet plate photo portrait is an example of the second type of retrovation.
Photo: Tuomas Sinkkonen 2015.

As with other innovations[2], retrovations can be improvements or can make radical changes compared to already adapted practices. Retrovations can be technologies, objects or they can be production methods, services or even concepts. They can be developed by individuals, groups, or companies – or like other innovations, they can emerge in open, developing environments. (Ali-Yrkkö et al. 2006.)

This overview's purpose is to define the concept of retrovation and discuss how the concept is related to the research of the history of technology and media history. The paper introduces various retrovation case examples and ponders this issue by posing the question about how retrovations differ from other products of historical culture.

Various Possibilities for Defining Retrovation

Retrovation is rarely submitted or developed as a theoretical academic concept. The term is sometimes used in business literature when referring to innovation by looking back (e.g. [Maital](#)

2010). Occasionally, retrovation refers to an un-wanted return to an old, “para” innovation or the invention of a worse wheel. ([Maital 2010](#); Peterson & Campbell 2001; [Urban Dictionary: Retrovation](#).) In popular discourse, retrovation is also used now and then, and it can refer to, for instance, upcycling or the restoration of furniture or other products (e.g. [Retrovation Facebook page](#)), or, it can point, for example, to “New innovative Hardware for Classic Computers” ([16xEight Digital Retrovation](#)) then referring to some sort of hybrids of old and new technologies.

A YouTube video “Innovation in Running Shoes” (Video 1), which introduces running shoes and barefoot running, notes that the concept of retrovation was developed by Associate Professor of Business Administration at the University of Manitoba, Dr. Nathan Greidanus. He defines retrovation in the following manner: “Retrovation is a specific form of innovation that utilizes largely forgotten past practices and products to address current problems and market opportunities.” According to the video citation, Greidanus divides the appropriation process of a retrovation into three phases: discovery, evolution and diffusion, and defines some of their key aspects:

1. Discovery

- a. Retrovation tends to take a pull or demand driven form
- b. An increase in the availability of data regarding previous innovations will increase retrovation discoveries

2. Evolution

- a. Retrovation tends to be a competency destructive to the incumbent innovator
- b. Retrovation tends to favor new firms in the early stages of introduction

3. Diffusion

- a. Retrovation has a slower diffusion rate because the majority of end-users tend to view ideas from the past as a step backwards (Video 1)



Video 1. Innovation in Running Shoes. Source: <https://youtu.be/8ZewHXwgkVU>.

In his blog articles, Professor Shlomo Maital, for his part, has introduced kangaroo care, a technique for helping premature babies with the help of the baby's parents' warmth. Maital defines retrovation as an innovation by looking back and explains: "Two key innovation principles joined together, to save the lives of prematurely-born babies in developing countries. One is the desperation of having no money – leading to superheated inventiveness and creativity. The second is the wisdom of looking back to old ideas, rather than constantly seeking technology-intensive expensive new ones, which I call 'retrovation'. [...] 'Kangaroo' is basically how mothers care for babies in 'poor' countries that cannot afford technology, and how mothers cared for babies through history. By looking 'backward', both in terms of history and in terms of technological sophistication, a major breakthrough was achieved." ([Maital 2010](#).)

Although the above mentioned scholarly definitions are derived from popular online sources, there have rarely ever been peer reviewed articles focusing on retrovations. Even those scholars who have been referred to in popular sources, have seldom published academic studies on the topic and the mention of retrovations can only be found as brief mentions (e.g. Brown 2001, 122).

Although retrovation is not yet fully developed as a theoretical concept, we can elaborate on the above-mentioned definitions and similarly recognize retrovations, while searching widely and analyzing our perceptions. Sometimes retrovations are, as Professor Maital defines, less-technological rediscovered techniques that we notice when "looking back." We argue that retrovations sometimes are still existing common practices when applying them in the different fields and applying them in fields where they have become extinct. One good example of this is found in the sail or a sail ship.

After industrialization and the development of new transportation systems and engines, sailing ships became outdated in global transportation in the early 20th century. However, they still maintained their position in sports, leisure, in naval education, and in some places, also in fishing and in the small-scale local transportation of goods. Recently, great sailing ships have returned, which can be witnessed at large public cultural events such as the Tall Ships Races. Likewise, there have been local cultural heritage projects, funded e.g. by the European Union for supporting the maintenance of sailing ship building culture (such as the galeas Ihana in Luvia, Finland, see ihana.fi).



Image 4. Galeas Ihana in Luvia Laitakari harbour after a touristic cruise, 12 July 2012. Photo: Jaakko Suominen.

In addition, environmental changes and the increased costs of energy have raised new interest in experimenting with sails on cargo ships ([Wired](#) 8.4.2009; [Tekniikka&Talous](#) 22.3.2007). Here, we see one major reason for retrovative reflection as [Maital](#) (2010) has noted: the need for reducing costs or the need to do something with minimal financial effort or nominal consumption of resources. Even though the sail experiments with cargo ships have so far not lead to any major breakthrough, they are still notable because of their public coverage.

There is also a third type of renaissance of sails that can be connected to retrovations: the concept of a sail has been applied in the other Nautica, outer space. Solar sails are thought to save energy on

interplanetary journeys (Helsingin Sanomat 20.1.2007). Even though the interplanetary sails do not bear a resemblance to ship sails, they share the same idea of sailing and using some sort of wind as a power source. The concept of sailing is also helpful to the public for understanding the idea of new space travel technology.

The sail example shows that retrovations emerge because of at least three different actions. On one hand, an artefact, phenomenon or practice could be applied to a new mission. Typically, the value of a reused object is strengthened when defined as a common cultural heritage that should be preserved. The above mentioned galeas Ihana is this sort of history product that utilizes *retromarketing*, meaning sales promotion that combines the discourses of retro, nostalgia, and heritage (Brown 2001). The sail of a sailing ship is not actually then a proper retrovation itself but it gains new value in the new consumption context.

Therefore, we argue that all products of historical culture, such as galeas Ihana, are not retrovations. The galeas' value is based mainly on the nostalgia experienced by the consumer, and one can ask, how much does it consist of features of retro innovations or does it only utilize the common, established logics of nostalgized tourist products. It appears that nostalgia is not the only reason motivating the creation of retrovations. We will return to this point later.

On the other hand, however, as mentioned before, an innovation might be re-actualized due to changed economic, environmental or societal factors. Usually in these cases, retrovation does not carry the meaning that a certain object or practice discovered from the past, after a period of non-use, is reused as such, but it is assembled with one or some new (technological) innovations. Not only the sail, the modern windmill can also be considered to be this type of retrovation in the sense that it been transformed into a technology for producing electricity for power networks and not only used for grinding flour. The new need has emerged because of problems with fossil sources of energy.^[3] This is the second type of retrovative operation.

The solar sail is an example of the third type of retrovation: the conceptual oriented revivification of a past element. An already known idea is transferred to a totally new environment where an innovation's functionality is based on known physical phenomena. A solar sail utilizes the radiation pressure from the Sun and other stars to push large ultra-thin mirrors to high speeds.

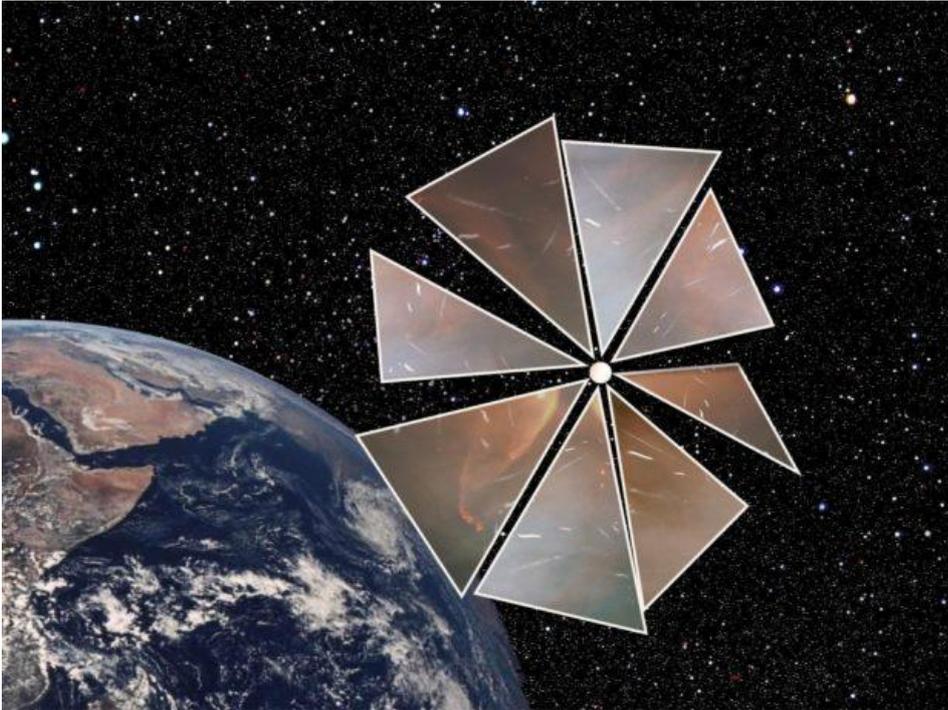


Image 5. Model of Cosmos 1 type solar sail. Source: [Wikipedia](#).

Uses for Retrovative Thinking

There are some other theoretical concepts that we can build on the top of the concept of retrovation. *Retrovativity* refers to the practices and actions that produce retrovations, and one can divide the retrovativity process into sections such as discovery, evolution, and diffusion as Nathan Greidanus has suggested in Video 1. Retrovativity requires *retrovative thinking*, which stands for actively seeking the recognition of already existing retrovations, and the base material for potential retrovations. Retrovative thinking is also needed, not only in discovery, but also in other phases of the creation of retrovation. The discovery of *retrovative potential* can be about methods of “looking back” as Maital has suggested, or it can refer to more active efforts in increasing personal or public awareness of information on previous innovations as Greidanus has stated (Video 1).

Retrovative potential refers, then, to features or affordances of current products or a phenomenon as a foundation or platform for a retrovation in future. Retrovative thinking utilizes theories and methodologies of historical research when searching for resources that have disappeared in the past. Historians have become accustomed to the fact that the past proves to be surprising and that historical processes turn out to be different than what is expected by the majority of the historians’ contemporaries. Still rarely, historians have begun to ponder questions about how to re-activate extinct processes and how to turn them into novel products or other developments.

Innovations other than retroventions obviously also have connections to the past. When one studies the early stages of the appropriation of novelties, one notices how novelties are usually anchored to existing discourses and systems: the novelty is made purposeful when comparing it to something “old” or otherwise recognized (see e.g. Suominen 2003, 62, 133–134 and the so-called discourse of the safe change). New, unknown technology and other novelties are made familiar and domesticated within historical narration. Innovation is domesticated, for example, with an explanation of its origin.

There is the flipside to the coin: novelties also affect old technologies, which in some cases, will be further developed in order to imitate novelties for maintaining their up-to-date value (Schivelbusch 1995; Schivelbusch 1996, 67; Rosenberg 1994, 69–70).^[4] Probably less studied is the other side of the appropriation process, the vanishing and death of technology, even though there has been increasing interest towards processes of becoming obsolete, abandoned and forgotten media, and technology (e.g. Pantzar & Shove 2006; Parikka 2012). Still, the life-cycle that can, as shown here, continue as revivification or, for example, as something that is transformed as cultural heritage object, has not yet been studied enough. In the cultural heritage process, (Sivula 2010, 35; Sivula 2015, 54–57.)^[5] part of the value of a tangible or an intangible object forms from the history of the object. In the cultural heritage process, historical knowledge transforms and becomes economic or symbolic values, which are not clearly separable. (Sivula 2010a; Sivula 2010b; Sivula 2012; [Suominen & Sivula 2016.](#))

History has been used as a resource, however, in many cases in only a very limited way. Many scholars have written about nostalgia and the retro boom, which strengthened in the 1990s and can be seen in, for example, the recycling of pop and rock music, design, fashion, games, and even in pornography. (See e. g. Boym 2001; Brown 2001; Brown & Sherry 2003; Guffey 2006; de Groot 2008; Reynolds 2011.) Media scholar Veija Hietala has referred to the turn of the new millennium as the Era of New Romanticism, caused by an emotional boom and “millennium crisis.” (Hietala 2007). However, other scholars, such as Anu Koivunen, have criticized the idea that one could make such inferences from nostalgic yearning or define it precisely as a certain specific era. (Koivunen 2001.)



Image 6. A new Mini in the car park of Pori Cotton. The former factory building in the background is a health center nowadays. Photo: Jaakko Suominen, 18 May 2012.

Nevertheless, there are many commodities that utilize interest towards retro fashion and nostalgia. These products consist of records imitating 1960s soul, re-publications of old digital games and gaming devices, retro bicycles, new models of cars such as the Morris Mini and Volkswagen Beetle, sweets, and a plethora of other products. While they are not necessary retrovations themselves, their marketing uses their retrovative potentiality as mentioned before. Nonetheless, we argue that retro and nostalgia-related revivification is not enough for labeling the products as retrovations. Those products do not have a new purpose of use and their users are in many cases, the very same ones who already have experiences with them, there has not been a boom in the need for the main category of the objects.

The prerequisite for the systematic recognition of retrovation is that the retrovation is not identified as a *nostalgia product*. Nostalgia products are not retrovations in the sense that they are not specifically resurrected as a newly topical item. A retro chocolate candy is not tangibly different from other chocolate sweets, except on an image level. A retro-designed car does not differ from other cars, because it consists of the same technologies, fulfills a familiar need, and it is typically constructed on the top of the same chassis as other car models.

We can study the question of retrovation and nostalgia items using two current Nintendo product examples. In the summer of 2016, Nintendo released the augmented reality game *Pokémon Go*,

developed by Niantic, a company that has earlier produced similar types of games such as *Ingress*, which combines the use of mobile devices and physical motion in an urban space. The rapid success and popularity of *Pokémon Go* was explained immediately in the media, partially because of nostalgic reasons: the main target group of players was the same group that remembered *Pokémon* as collectible cards, an animated program, and as portable video games in the 1990s ([Talouselämä](#) 20.7.2016; [Phys.org](#) 20.7.2016; [Yle](#) 21.7.2016). Some of the interviewed players admitted this reason for their interest, but many players had not had this kind of previous relationship with *Pokémon*. They were either too young or they had not followed the *Pokémon* phenomenon previously. However, one could think of *Pokémon Go* as a retrovation, not only because it utilizes a familiar brand and characters, which are suitable for augmented reality adaptation, but also because it has become the first very popular and widely spread augmented reality game after more than fifteen years of experiments with mobile devices and AR games. This time, suitable and already widely familiar, established brands (both Nintendo and *Pokémon*) and sufficiently functional technology (AR applications) with commonly used devices (smart phones), formed a successful combination and mixture.

The other new Nintendo product is the small Nintendo Entertainment Retro Console, also introduced in the summer of 2016, which will be on sale before Christmas of 2016. The console looks mainly like its 1980s predecessor, however, it is much smaller and this version contains several already installed classic Nintendo games. Nintendo is no longer focusing only on “Nintendo kidz” as its customer base but also “Nintendads who grew up when the company’s hardware was dominant in gaming and now have kids of their own.” (see [South China Morning Post](#) 21.7.2016.) The Retro Console is obviously a history and nostalgia product but not that much of a retrovation and it is merely comparable to previously-mentioned retro-designed cars and other products.

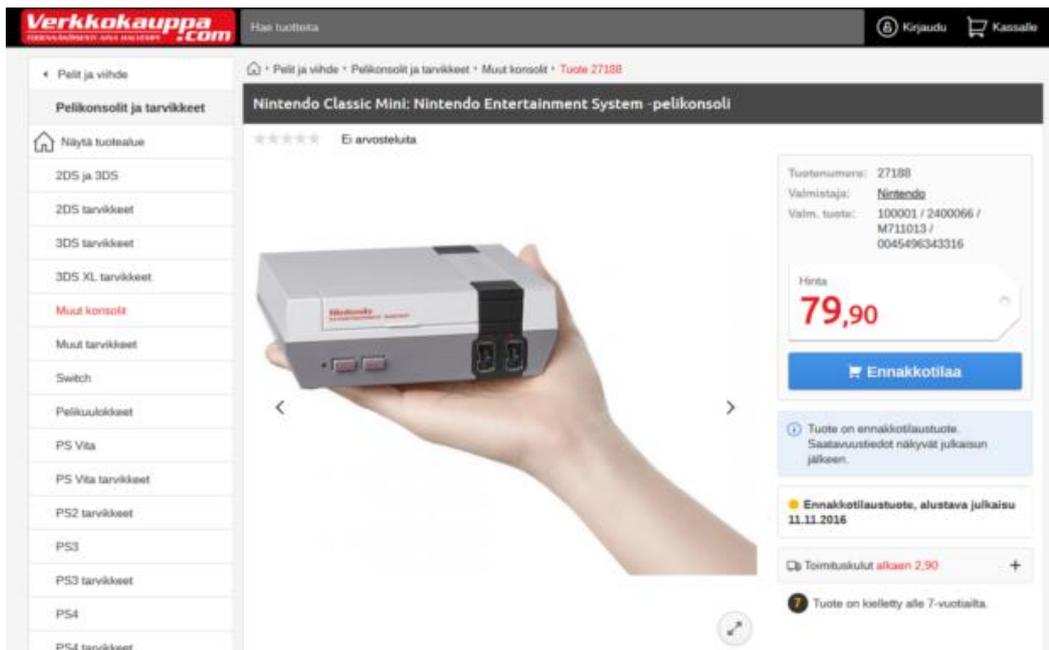


Image 7. Nintendo Classic Mini in Verkkokauppa.com online store. Screen capture: Jaakko Suominen, 6 November 2016.

The Future of Retrovations

History products or retrovativity are not only related to what has happened earlier. In his book, Sociologist Fred Davis already predicted the arrival of nostalgia in the late 1970s in which he stated that in future, companies might hire experts for preparing the planned revivification of company products. Davis focused on the nostalgia aspects of revivification and discussed the possibility of constructing certain Nostalgia Exploitation Potential (NEP) products, which could be resurrected once or many times. (Davis 1979, 132–134.) The task of experts would be, for instance, to evaluate which genres, characters and plots from television would be of the type that they would be popular again after a break of 10 or 20 years. Thus, not only with television series such as *Dallas*, *Star Trek*, *Miami Vice* or *Monty Python's Flying Circus*, we can think about the nostalgia exploitation potential with other new products, such as the Finnish mobile game series *Angry Birds*. The *Angry Birds* game consists of animal characters and is transmedially supported with a plethora of other consumer items, so one can assume that the game's durability has already been considered in the product launch. The developers of *Angry Birds* have occasionally mentioned the Disney Corporation as one of their paragons (see e.g. [Yle](#) 17.7.2012).

In practice, Davis thought that this sort of presumption would be extremely difficult to make (Davis 1979, 132–134.). People are not very good at future forecasting and are unable to very clearly estimate the changing of needs, even though one can assume that even fragmented uses of media

and technologies will produce the need for remembrance and the search for consumption as a generational experience. One should not overstate the power of nostalgia or the nostalgia explanation. In our own theoretical model of history products, nostalgia is only one aspect that is linked to the emergence of retrovations and more generally, to the demand for products of historical culture. Other aspects consist of themes such as the search for security, the lure of novelty based on the novelty of history and its imaginary transmutations (phenomena such as steam punk) and fear of loss. In some cases, these types may be present in a single product all along.

Table 1. Demands for the creation and maintenance of history products.

Nostalgia	Seeking security	Lure of novelty based on the novelty of history and its imaginary transmutations	Fear of cultural amnesia
Example: New VW Beetle	Example: Domsday prepper sub-cultures	Example: Steampunk sub-cultures	Example: Calligraphy courses

In any case, however, the importance of retrovative planning and design will increase, for example, in those popular cultural fields (of industry) that will mature. For instance, digital game cultures are “middle-aging” in a similar way compared to what one has seen in pop and rock music ([Suominen 2008](#)). This shift has been seen in consumption, and scholars have also recognized retrogaming as one trend in game cultures (Newman 2004; Whalen & Taylor 2008. On the history of retrogaming, see [Suominen, Reunanen & Remes 2015](#)). Likewise, game companies have taken note of the demand for old game products or themes and have tried to answer the demand in many ways. ([Suominen 2012.](#)) However, scholars like James Newman have pointed out that the companies do this in a very selective manner for business purposes, while at the same time, new game products are made obsolete on purpose (Newman 2012.). Retrovative planning does not mean the resurrection of game products such as games, devices or game characters as such, but also the utilization of other kinds of game-related elements or mechanics.

Nonetheless, retrovativity or the use of retrovative potential is not only related to popular culture it is also more general. For example, one can see this when browsing net blogs about refurbishing, tuning, pimping, modding, and in more general Do-It-Yourself (DIY) ideology. One can ask,

though, are the individual tunings retrovations or do they become retrovations only in those cases when they are commonly adapted? According to cultural historian and media theorist Jussi Parikka, the DIY cultures that are connected to technological hardware and software tell us about historical curiosity and about the desire to participate in production processes, as well as about the urge to make experiments with alternatives, odd ideas and about the wish to blaze new paths that have been outside the conventional historical narrative (Parikka 2012, 1–2.)[\[6\]](#)

Retrovations in Historical Culture

Our own perspective on the uses of historical knowledge and retrovativity, is based on the more general concept of historical culture. Historical culture is an umbrella concept for the various treatments of the past (Grever & Ribbens 2008, 257). It signifies the ways in which images and information dealing with the past are produced and used. Historical culture includes all the forms of contemporary culture that are built on the basis on forms, manners, events that are organized for encountering the past, and significations given to the past. Cultural historian Hannu Salmi (2001) distinguishes five means by which the past is among us in the present-day: It is present in memories, experiences, customs, monuments and commodities. We produce and use the knowledge of the past in the form of histories. (Salmi 2001. See also Koselleck 1985; Aronsson 2005, Grever 2006, Grever & Ribbens 2008.)

The experience of history's presence is obvious, most likely, for example, to everybody who approaches the city of Venice by boat or sees the pyramids in Egypt. Practices and customs of historical culture consist of, for instance, the celebration of anniversaries, the remembrance of dates or sets of chronologies and so forth. A historical monument or other unique object is normally a representation, a remnant or evidence of a fact that is connected to a process recognized as historical. The object acquires its historical value because of this linkage. These objects consist of various artefacts such as: J. M. W. Turner's painting [The Battle of Trafalgar](#) (1824), which represent a historical event; [the crown of Saint Stephen](#), which symbolizes the founding of Hungary; the Magna Carta document in England, which has become a landmark of constitutional rights; as well as the [Wasa ship](#) (1628) at the Vasa Museum in Stockholm; and the [Atlantis space shuttle](#) at the Kennedy Space Center Visitor Complex in the USA. Époque films, retro pattern clothes, and new versions of *Space Invaders* or *Pac-Man* videogames are, for their part, examples of mass-produced historical commodities.



Image 8. Jaakko Suominen's collection of Pac-Man memorabilia, other game related products, and old computers and mobile phones. Photo: Jaakko Suominen, 28 October 2016.

Historical culture is a field of identities, resources, cultural products, and history management. The most important resource of historical culture is knowledge that considers the past, i.e. history, not only as narratives, but as knowledge as well. Products consist of all the above-mentioned types. History management signifies all of those means that an actor uses for taking possession of past-related knowledge and for producing new material or immaterial values that would be included in the attributes of cultural products (see Figure 1). (See also [Suominen 2012](#).)

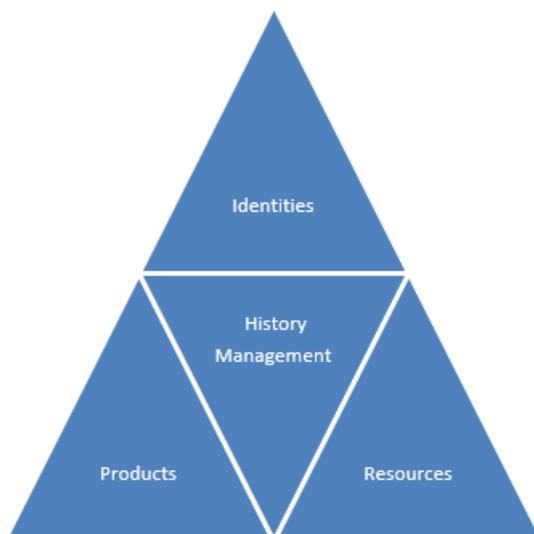


Figure 1. Historical culture in action.

History management brings together historical resources, cultural products, and consumer identities. Retrovative activity is history management that transfers historical facts, as a resource, to the products. In order to find material that is suitable for retrovation, one must find this type of product in the developing or other object-related processes from the past that have ended in an untimely manner. The nostalgizing activity of history management seems merely to be dealing with consumer identities and historical narratives, but this aspect of history management needs to be studied further.

Table 2. From Corporate Awareness of Historicity to the Management of History.

Awareness of Historicity	Uses of History	Management of History
<p>Awareness that there has been a past and that history might be useful.</p> <p>Layers: Internal history of the corporation, history of the industry, general histories</p>	<p>Using histories and representing the pasts but not necessary with a special plan.</p>	<p>Conscious and strategic use of history with a specific division, direction, and goals. Layers:</p> <p>Organization-oriented management, product-based management</p>

In corporations and other organizations, history management is the systematic utilization of historical knowledge. It comprises organizations' operations, strategic management as well as products (see the table 2). Hence, our perspective on history management is more general and anchored more clearly in the research tradition of historical culture, comparing to the German literature of history management in which the concept refers mainly to how to use corporate history in company branding and product marketing. (Herbrand & Röhrig 2006.) Research connected to the commercial use of history and cultural heritage have often started in business research where the understanding of history is limited and that has gaps in knowledge about the research of theory and the methodology of history. (Cf. e.g. Stern 1992; Hakala et al. 2011.) Therefore, they do not problematize the concepts and processes of history and cultural heritage. But to conclude this we argue that retrovative activity must be understood in the context of history management.

Conclusion

A Finnish online environment, the [Habbo Hotel](#) created by the Sulake Corporation, is another kind of a product consisting of retrovative elements. In the early 2000s, Habbo operated in several countries and the company was one of the largest Finnish game companies. The popularity of the award-winning online environment was based partially on its visual outlook, which was different from its competitors. The developers of the environment have claimed in several interviews that they were influenced by the 1980s games such as *Knight Lore* (1984) and *Head over Heels* (1987) that used isometric graphics. The appearance looked fresh in the early 2000s and also fit well with the contemporary retro boom (see also [Suominen](#) 2008). Likewise, other Finnish game companies, such as Housemarque, have articulated the purported uses of their earlier game experiences, while creating new products (Kuorikoski 2014, 40). We argue that the sole source of influence does not transform as a retrovation before the developers recognized and started to intentionally utilize their source of influence. (On *Habbo Hotel* and its research, see Johnson 2009.)



Image 9. Malja Bar (Bowl Bar) of Habbo 2008. Source: [Wikipedia](#).

The case examples presented in this overview, show how diverse of a phenomenon retrovation is. Thus, the concept should be tested and elaborated using other more specific case studies such as *Pokémon Go*. For a media historian or historian of technology, there are many reasons why retrovations should be studied in the context of history management. A historian can, for instance, recognize the possibilities hidden in the missing links or recognize such developments that have

been lost or had never become popular for different reasons. In this sense, a historian is an expert of knowledge-related time to the past, present, and future at the same. Likewise, a historian needs to have sensitivity in order to recognize the functioning logic of existing retroventions – such as in this paper – and is able to see the future retrovention potentialities of new products and phenomena, which means that the historian has to acquire retrovention sensitivity.

Acknowledgements

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Notes

[1] The overview is based on a previously published Finnish article (Suominen & Sivula 2012) but also consists of questions approached in newer literature and uses some more case examples.

[2] We understand innovation here as a widely appropriated new practice or a product, not only as a commercialized invention. (see e.g. Ali-Yrkkö ym. 2006, 34; Lemola 2000. On a conceptual history of innovation, see Godin 2016).

[3] Economic science literature can recognize, implicitly at least, the concept of "retarded innovation," which may refer to e.g. such inventions, patents and developments that have not been commercially successful in their own age due to a lack of financial support, technical problems or because of some other reasons. In some cases, these retarded innovations can be inspected and utilized later when technical, societal, economic, and other cultural conditions have changed. On the

other hand, we could also talk about “retired innovations.” Those products could have been, more or less popular before, but for some reason their use became rare. However, under new conditions, they might become usable again. Amateur radio activities or LP records could be one example of potential retarded innovation. However, a retired innovation has rarely been used as a theoretical concept, even though the phenomenon has been recognized, for example, when talking about obsolete or residual media, or media archaeology (see e.g. Parikka 2012).

[4] Jay David Bolter and Richard Grusin (2001/1999) had referred to a quite similar issue with the concept of remediation. Remediation signifies the stratification process of media forms, and how old and new media borrow the features from each other. On one hand, the novelties presented as developed versions of older media forms and, on the other hand, the old forms are typically shaped because of the pressure of novelties (lighting systems, television etc.). The web remediates television as real time communication media, and the Internet remediates, for example, telegraphy as communication media and techno-cultural symbol, etc.

[5] According to Sivula (2015), cultural heritage is created and recreated in the process of identity work, where a heritage community uses different histories to add to the cultural value of the remnants of the past. A heritage community is a participatory group of actors, involved in a certain process of identity work, and voluntarily taking part in the cultural heritage production. The members of heritage communities use different kinds of histories to consolidate their sense of ownership of the remnants of their own past and to strengthen their sense of belonging and togetherness.

[6] Media archeology represented by Jussi Parikka, Erkki Huhtamo and other scholars is one general, wider perspective where conceptualizations of retrovation could be situated.