

#ZEROWASTE

**THE ROLE OF ART IN
ACHIEVING
ZEROWASTE WITH
SMALL BUSINESSES
IN WALES:
A ARTE ÚTIL STUDY**

DISSERTATION BY HÉLÈNE CHEUNG

STATEMENT REGARDING COPYRIGHT

University of Wales Trinity Saint David
MSc International Innovation Management

February 2023

<https://www.linkedin.com/in/h%C3%A9l%C3%A8nedolley-cheung>

TABLE OF CONTENTS

Statement regarding copyright	2
Table of contents	3
Acknowledgements	4
Abstract	5
List of abbreviations used	6
Introduction	7
Literature review	12
Methodology	24
Results and discussion	29
Conclusion: Evaluation and recommendation	40
Reference list	43
Appendix	53

LIST OF TABLES

Table 1. Categories overall percentage in ascending order (page 30)

Table 2. Pearson's correlation coefficients between three parameters: geographical spread, size of community engagements, and outcomes (page 39)

LIST OF FIGURES

Figure 1. Proportion of each type of outcomes (page 34)

Figure 2. Areas of activity from the initial project or its branched out replicas (page 35)

Figure 3. Areas of activity from the initial project when originated in cities of over 1 million inhabitants (page 36)

Figure 4. Areas of activity from the initial project when originated in towns of less than 100,000 inhabitants (page 37)

Figure 5. Projects lifespan (page 37)

Figure 6. Distribution of community reach (page 38)

ACKNOWLEDGEMENTS

I would like to thank my supervisor Alan Mumby for his encouragement and time and for making this work possible. His enthusiasm and knowledge were invaluable, giving me a returned confidence and curiosity about innovation.

Also, I would like to give special thanks to the lecturers for sharing their knowledge and giving me advice: Jaymie Phillips, Howard Davies and Shaun Kilbane. I would like to acknowledge my appreciation for all the guest lecturers who took the time to share their experiences, especially Eoin Bailey. A big thank you to all of the team at MADE Cymru who made this possible: Mike Swanson, Amanda Hayden and Graham Howe, and also the administrative team at the University of Wales Trinity St David.

A big thank you to my former employer Eifion Griffiths for giving me this opportunity.

The support from my fellow students was so important to be able to see this work through, there are too many to list them all, but I would like to mention Sophia Watts ex-colleague and friend. I have learned so much from all of them and I am grateful for that.

A special dedication to my husband Wai Shing Cheung who has always believed in me, and my children who sacrificed some of their time with mummy at a tender age.

This dissertation as part of the Master's degree was funded by the European Structural and Investment Funds.

ABSTRACT

This article examines the roles art can be attributed to driving SMEs in Wales into a local zero-waste project that can be replicated across the country. The descriptive statistics analysis based on the Arte Útil platform, combined with a literature review investigating how art defends the cause of the environment, are drawn from the examination of the social and environmental aspects of industrial symbiosis. This led to this research on the advantages of activism and the danger of tokenism in community art. The analysis tests the validity of art as a way of creating an industrial symbiosis at a macro level. The findings indicate that even though community art with a concrete outcome develops community engagement, and in some case brings data platform technology, it does not involve businesses as part of the projects. To conclude, community art when useful to communities can indirectly incite SMEs to be involved, while it depends on the aim of said art project to reach zero waste. The results of this research have implications for how art is funded versus how innovation is and the independence art implies which would impact the means to achieve a circular economy.

LIST OF ABBREVIATIONS USED

BCO - British Council for Offices

BCT - Building Communities Trust

DGRI - Directorate-General for Research and Innovation

RTA - Rapid Transition Alliance

SMEs - Small and Medium Enterprises

TED talks - Technology Entertainment Design talks

WAG - Welsh Assembly Government

% - percent

INTRODUCTION

CONTEXT

One Wales: One Planet by 2050 scheme was set in 2009 by the Welsh Assembly Government. The most recent estimates of Wales' Ecological footprint date from 2011 and the estimations show that the way of life in Wales would require 2.5 planets (Stockholm Environmental Institute, 2015). To reduce the country's impact on the planet, people in Wales must reduce their waste and consequently reduce their demand on resources, both part of the circular economy strategy planned by the Welsh Government to reach zero waste by 2050. The plan for One Planet: Zero waste Wales is in line with the Well-being of Future Generations Act and the United Nations Sustainable Development Goals. Figures from 2003 show that nearly half of the country's ecological footprint originates from the housing and the food sectors combined, followed by transport with 18% and consumer goods at 15% (WAG). To keep on track with the country's goals, a new waste management legislation will come into application in April 2023 forcing businesses to segregate waste by type of materials and find alternative solutions to throwing away food waste. This legislative solution resonates with the results from the interviews of Waste management organisations in Sweden, conducted by Aid et al. (2017) where they showed that waste management organisations both private and public are considering shifting their business model to value the waste collected and be part of industrial symbiosis projects, in line with the circular economy principles. To facilitate this transition, quality must be prioritised over quantity by limiting the amount of mixed materials. However, the difficulty exists in the centralised management of waste, hindering the possibility of local sourcing of waste. Case studies in the UK demonstrated that companies have contacts within their locality to source waste (Anne P. M. Velenturf, 2017) and have the connections to create a local circular economy.

Recycling materials using a centralised system means that once the waste is collected, it is out of sight and out of the mind. It is particularly true when, for the first year, 88% of plastic waste collected by the Ceredigion council is exported (myrecyclingwales.org.uk, n.d.), even though the figures for Wales' recycling performance show that most of the waste collected in Wales is sold to waste management businesses in Wales but that applies to food waste for the vast majority. Also, waste management companies may sell the waste afterwards with very little means of checking the final destination and the way it is processed. It is just moving the problem outside of Wales. It becomes apparent that while the centralisation of waste management focuses on quantity, importance should be given to quality. The other point worth noting is that if most of the waste is exported, the circular

economy for Wales is just in name as it relies on the receiving countries' good willingness to process the waste environmentally.

Finally, if recycled materials are exported, it means that it needs to be reimported whereas to compete with cheap virgin materials, recycled materials must be readily accessible, favouring the locality. Basically for Wales to be truly zero waste by 2050, it needs to process waste in a closed-loop supply chain and stop taking more resources from the planet.

This would be made possible with an industrial symbiosis approach to businesses at a local level to involve SMEs across Wales and go beyond the city of Cardiff (CCEN, n.d.). Symbiosis is a term that originated from biology simply meaning « living together » (Martin, B.D. and Schwab, E., 2012). From a business point of view, this term in the context of industrial symbiosis means:

the coordination of energy and material flows among geographically proximate firms to increase economic performance while reducing environmental impact. (Verguts, V., et. al, 2016)

Businesses need to work together when operating in the same local area to find solutions to reduce costs and improve their environmental credentials. Only collaboration between SMEs will lead to a coordinated management of resources as it requires sharing information about these resources.

FRAME

This dissertation focuses on one of the principles of zero waste in a circular economy: recycling, which constitutes one of the 4Rs: reduce, reuse, recycle and recover. Therefore it doesn't study the ultimate aim for sustainable development (Kirchherr, J. et al., 2017). The definition adopted here is that the principle for zero waste in a circular economy is to eliminate waste and consider any waste created as a byproduct and a resource to other businesses (Frosch, R. and Gallopoulos, N., 1989).

The geographical limits of the research are set in Wales which can be considered a rural country with a population density of 150 inhabitants per square kilometre on average: from the city of Cardiff (representing 8.6% of the population in Wales) with 2,572 residents/km² - less than half the density of London - to the county of Powys with 26 residents/km² (ONS, 2022). Because of the population density of the country, this research focuses on small towns, otherwise called market towns.

This research focuses on SMEs because they are the largest employers in Wales with a total of 43.5% of employment (Welsh Government, 2021), therefore touching the vastest population.

An extensive part of the dissertation will be based on secondary research linking different aspects of art with the points SMEs can benefit from to achieve industrial symbiosis at a local level.

A particular attention will be made to the social aspects of both art and industrial symbiosis. Art will be explored through the movements of environmental art, useful art, community art and activism as an artistic-political practice (Danko, D., 2018) because they all have the planet and/or communities at heart while defending a cause. This will lead to the subject of the primary research: a study of the projects featured on the Arte Útil platform to establish if what is categorised as useful art presents the tools necessary for SMEs to create industrial symbiosis within their local communities. Using statistics, it will be shown the engagement of SMEs in activism when it takes the form of art, the possible geographical expansion of the projects, the degree of involvement of communities and the type of outcomes. This will give a general idea about the capacity of such projects and their limits in regards to art presenting the potential for creating zero waste projects in the context of small businesses in rural areas. The time constraints of this research does not allow to study specific projects in more depth for a deeper understanding of their management including funding.

HYPOTHESIS

Based on existing papers analysis, this dissertation will list the obstacles and the enablers for a successful industrial symbiosis and analyse if the art sector, within local communities, can enable SMEs to overcome these obstacles, go beyond the storytelling and take action, as an external initiator to accelerate in time and geographically, the practice of industrial symbiosis.

Firstly, when identifying the drivers to possible industrial symbiosis in situ, they originate from the national level rather than the local level: they relate to the national laws, policies and strategies which in turn reflect the social, economic, cultural and political contexts (Neves, A. et al., 2019). For instance in Europe, they mirror the general concern about the environment; some have been operating for years while developing spontaneously without any external organiser (Domenech, T. et al., 2019). If art can focus a project to a local level involving the local community, then it can be the factor for creating a decentralised system for waste management amongst the community including SMEs.

Secondly, when identifying the enablers of industrial symbiosis, they relate to the locality: they are in the same area and they generally gather businesses from primary and secondary sectors who usually take the central role within the symbiosis (Domenech, T. et al., 2019). Therefore, in this dissertation, the local level will be investigated using the spread of community centres across Wales. If art can act as an enabler thanks to its national independent network, then it offers the possibilities of a community-led network for zero waste projects nationally.

Thirdly, when identifying the obstacles to industrial symbiosis, they will be compared to the capacities of art. Case studies conducted amongst SMEs in an industrial park in Spain identified a

lack of trust and data (Rincón-Moreno, J., et. al., 2020) hindering collaborations. Creative initiatives at a local level will force businesses to collaborate, creating trust: art being the bonding agent between them. They will also start the building up of data informally. If art can combine collaborative work using data technology while building trust when knowledge is shared, then it will enable SMEs to share and access crucial information to build an industrial symbiosis and reach zero waste.

Finally, the need for storytelling to demonstrate the circular economy and appeal to SMEs can be more effective if it originates from creative initiatives based on the doing rather than the showing. When the public is invited to participate in workshops, public meetings or committees, the measurement of success is for some events measured using the number of participants and for others by whether or not the outcomes had some perceived influence (Chess and Purcell, 1999), all being far from action. Whereas to sustain community involvement in climate change strategies as it would about recycling and circular economy, community-based projects must be proactive as well as reactive (Axon, S., 2016), and community art projects involving local businesses could be just that. If activism can appeal to local businesses, then it would accelerate the adoption of industrial symbiosis way of working to reach Wales' zero waste goals without resorting to exporting waste.

AIMS AND OBJECTIVES

This research is to demonstrate that the art sector can play an active role to bring SMEs in Wales on board the circular economy and take action to achieve the country's goal of One Planet by 2050.

Relying on the connections to the local communities via involvement during public cultural events, an organisation operating in the art sector has developed links with all sectors through collaborations but has also gained the attention of the local communities. During public cultural events, its capacity to convey a message through storytelling and touch people is a force that can and should be used to create a healthier and more just planet. This is when art can deliver a message, persuade, resonate emotionally, change people's views and perspectives, make them part of the debate, invite people to participate and finally give small businesses a view of what is possible at a local scale.

It is important to show that organisations operating in the art sector close to communities are dispersed throughout Wales as opposed to clustered as other industries might be. It gives each organisation a strong position geographically. This research shows that the local scale can be the most beneficial and that an industrial symbiosis at a macro level is the first step towards zero waste to eliminate a disconnected centralisation of waste management. A local scale allows for the particularities of the localities to be taken into consideration: this is reflected in the storytelling, both

the stories and the delivery of the stories. There is no “one size fits all”. It is the particularities that bring emotional attachment to the message: each story must be unique resonating with the local communities’ own stories. It is this originality that will conquer the people’s hearts and small businesses are led by the same people. Small businesses are not an entity on their own, they are the local people’s way of life as well as a way of living. Only original creative initiatives will talk to the specific public: a seaside town will have different types of businesses as well as different priorities than a town in an ex-mining area.

The art sector in rural areas plays a different role than in cities where it is concentrated in galleries and seen as an elitist milieu. Art in rural areas has direct links to the communities and reaches a diverse population outside of galleries and into public spaces. That is why the art sector can reach anyone regardless of one’s background. It is in the context of public spaces and accessibility that creative initiatives will be reported in this research.

The purpose of the research is to establish if the art sector with creative local initiatives could respond to the needs SMEs highlight when considering industrial symbiosis as a way to reach zero waste therefore the circular economy. If it can be demonstrated that the art sector via creative local initiatives can not only share a message about waste and the environmental issues it generates, but initiate zero waste art projects involving SMEs in a practical manner solving issues met by SMEs when considering industrial symbiosis, it would demonstrate its potential to transform local communities into circular ones. When community art projects become the medium for environmental activism, it would give SMEs involved in these projects the tools to prove that they can build a network to adopt innovative solutions and transform waste into resources.

1.

LITERATURE REVIEW

FOR A MESSAGE - ENVIRONMENTAL ART

An experiment by Jucker, J.-L., Barrett, J.L. and Wlodarski, R. (2014) showed that it is the artist's message that the uninitiated viewer, like a child, assesses, not the aesthetic of the artwork. This demonstrates that an artwork needs to be understood to be appreciated. In the context of this dissertation, environmental art is chosen because of the importance of the message and its meaning are intrinsically linked with Wales' goal of zero waste by 2050. Environmental art is defined by the Tate (2017) as an

art that addresses social and political issues relating to the natural and urban environment.

Even though, for the purpose of this dissertation, the focus is on the natural environmental problems rather than the urban ones, the political view in the sense that it concerns the public affairs of the country regarding sustainability makes the message of environmental art appropriate to Wales' environmental ambitions.

Viewed as a legacy of the 60's land art movement which had a poetical approach to marks left by human activity like Richard Long's work entitled "A line made by walking" (Artland Magazine, 2019), environmental art delivers an engaged view, making connections with community-based activism (Scott, E.E. and Swenson, K.J., 2015). Through the decades, artists moved from the poetical mark they would leave in a landscape, creating artwork to reach an aesthetic, that is why land art was also called earth work, to an artwork which portrays the impact human activities have with the collaboration of scientists. This quest for reality rather than beauty positions art as a messenger. For example, Robertina Šebjanič (2022) works alongside scientists to record sounds from the oceans and seas. The sounds captured in her work "Aquatocene / Subaquatic quest for serenity" (2016-ongoing) show the impact human activities have on the wildlife's acoustic environment. She is the witness and the messenger of noise pollution in the waters, making the inaudible audible. The brutality of her work exists in the fact that even though the sounds are audited and staged, they are not transformed. She is showing us a mirror but not the one that reflects the tale of fairness: it

reflects the ugly truth. The message is there in all its natural beauty: it is not about noise pollution but about the changes the pollution provokes.

A similar analysis can be made regarding artwork using waste. The example of Arman's "Poubelles" series from 1959, which can be translated as "Rubbish bins" seems to look for an aesthetic of the composition as well as telling the story of the person who generated that waste. Even though the artwork stills portrays society and its overconsumption of objects, the message does not primarily address environmental issues to the viewer. However, it does when the sculptor Sayaka Ganz uses discarded plastic objects to deliver a message. The series titled "Reclaimed plastics" representing wild animals transforms waste into sculptures. This approach to environmental art solicits the viewer's idea about beauty almost forgetting that they are made of waste. The emotional response of the viewer in front of Jeff Kong's "Unhappily Ever After" images belongs to a different register: using well-loved Disney characters, the images convey disturbing scenes like Mowgli in a city looking at a trickle of dirty water amongst detritus. The photographer Chris Jordan goes beyond showing the scale of the consumerist western societies, as he did in his series "Intolerable Beauty: Portraits of American Mass Consumption" (2003 - 2005), and communicates facts with the photomontages of objects representing statistics of various subjects in his series "Running the Numbers" (2006-Current). Trained as a lawyer, the artist combines the search for an intellectual response as well as an emotional one from the viewer. As he explained in his TED Talk (Jordan, C., 2008), he wants the 6 figures and 9 figures numbers to be 'felt' when showing statistics of the number of plastic bags used every ten seconds worldwide and the weight of plastic waste entering the oceans every hour. When expecting to provoke a purely emotional response, his photographic work "Midway: Message from the Gyre (2009 - Current) shows the reality of skeletons of dead albatrosses exposing the amount of plastic ingested still inside their body. In his documentary "Albatross" (2018) the sad reality of plastic waste comes slamming into the viewer's heart. The artist's intentions are, in this particular film, to mix storytelling with the symbol of death: plastic poisons our lives as much as the albatrosses' (Chris Jordan photographic arts, n.d.).

Environmental art goes beyond Oscar Wilde's "Art for art's sake" and the autonomy of the aesthetics from the message in all artwork (Bell-Villada, G. H., 1986), beyond the morality and the ethics without which an artwork until the 20th century ceased to be art (Carroll, N., 2000). It defends morality that is to say the protection of the natural environment, in an objective manner: using science. The Environmental art movement supports a cause in the way of the Cambridge definition:

a socially valuable principle that is strongly supported by some people.

In this definition, two aspects need to be explored. The first one is the fact that the cause must be socially valuable to be defensible. And the second is the fact that it is defended by a minority of people. The idea of being marginalised yet valuable is restricting: giving little hope of this cause for the natural environment to be accepted by the majority. When considering the aim of the one wales: one planet project, it depends on the adoption of the zero waste principle of the circular economy by the many, not the few. In the examples cited here, the supported cause can be transmitted by the message it conveys but it is validated by science: either marine biology and oceanography or data with large figures there to impress the viewer. The artists are not present in their artwork to expose their imagination but to show artistically an undeniable reality: they present aesthetically and methodically a snapshot of what is happening in an effective, clear and direct way.

SPREADING THE MESSAGE

When an artist defends a cause like the natural environment, the ambitions of the artist can be to rally a higher number of people to the cause or like Stephanie Kilgast in her interview for the American Scientist (2019), to get people who already care for the natural environment to consume less. This means that the ambitions of an artist when defending a cause can either be quantitative or qualitative. When looking for quantity and influencing the masses, an art project like the Blue Planet II documentary falls short as the research conducted by Dunn, M.E., Mills, M. and Veríssimo, D. (2020) shows that despite its popularity, it didn't have a noticeable impact on the people's habits in their consumption of plastic. Knowing about a problem does not mean applying a solution that could be seen as an inconvenience for people in their everyday lives. The positive aspect of a documentary like Blue Planet II is the accessibility unlike an artwork exhibited in an art gallery and its capacity to touch a large number of people all at the same time.

When compared with industrial symbiosis to apply environmental practices in business operations which requires a network of connections, art does not seem to match: it does not create a star-shaped network with the artwork at its core like a company would (Domenech Aparisi T. A., 2010). Indeed, one addresses a small number of people within the limits of the art gallery and the other addresses the masses using television: neither a qualitative nor a quantitative ambition trigger action. As television evolved and led to a culture of communities (Lotz, A.D., 2007) with the support of video streaming platforms like YouTube, the emergence of a community from a documentary like Blue Planet II could be seen as a potential starting point for an individual to trigger an industrial symbiosis as networks start with people, not businesses (Gentry, B. S., and Burke, I. C., 2019). While identifying the primary and secondary sectors as the central roles of industrial symbiosis (Domenech, T. et al., 2019) and specifically the recyclers which were identified as the core of the network because there is more chance for them to make and receive contact with other

companies (King, S. et al, 2020), art using waste would take a central position. Therefore it is fair to consider artworks using recycled materials to make a comparison. Some artists who use waste, and usually end consumer waste, are limited to art galleries but some exhibit in public spaces like HA Schult with 'Trash people' to reach the masses or even to interpellate the political powers like Joe Rush during the G7 in 2021 with his Mount Recyclemore. The other point worth noting about Joe Rush's work is the fact that Mount Recyclemore was commissioned by musicMagpie, who re-commerce consumer technology and physical media. Even though musicMagpie is more than a recycler, it demonstrates that recyclers can be the initiators of an environmental project using art as a medium to spread the message and rally the general public to the cause while raising awareness. This UK example confirms King S. et al. (2020) findings in Australia regarding the pivotal role recyclers play in the network of an industrial symbiosis system: they receive as well as supply. The Mount Recyclemore project aimed to communicate the problem of e-waste to the general public. The choice of having a grand sculpture shown in a meaningful location, for instance, visible from the venue where the G7 meeting happened, demonstrates that art is the preferred medium to create publicity and address politicians. Even though not verified, the figures published by the musicMagpie group from a commissioned research have shown a positive outcome: more people in the UK know about e-waste and its negative impact on the natural environment. The aim was to spread the message and it did. The interesting point about the method used to spread the message was the scale of the project, its location and the notoriety of the artist making it all newsworthy for the artwork to appear on national television in the UK and USA as well as national newspapers, trending on social media and Google. The duration of the project did not seem to have any effect on its publicity: it was set up at the G7 summit for 4 days, before being exhibited at various locations for just over a year and dismantled to be recycled. The methods used to spread the message were not particular to art but it adopted commercial methods used by businesses instead. There was no art gallery or museum involved. The fact that the giant sculpture was commissioned to deliver a message and destroyed, eliminates the need for all the usual actors involved in the art market: the art gallery, the private collector, the auction, etc... Its aim was to get noticed by a large number of people.

Even though the survey commissioned by musicMagpie shows that 20% of the people still remember the giant sculpture, it does not communicate how long after the event the survey took place or even the details of the people surveyed. Besides the lack of transparency, it confirms that art relies on being memorable to spread the message. An artwork like Mount Recyclemore has more similarities with a scream. The message is not explicit but exists within the artwork: being made of tens of thousands of electronic waste. Considering methods of persuasion, marketing and propaganda, artworks for the cause of the environment are neither of those fully. Analysed through

Aristotle's three principles of persuasion, the reasoning (logos) is validated only when scientists are involved in the project. Otherwise, it is just the artist's point of view, the credibility (ethos) does not exist thanks to the imagination of the artist but it exists because it is backed by an anchor into the reality: in the examples mentioned here so far, it takes the forms of documentary and data, and finally the emotional appeal (pathos) viewed as the crucial factor to disseminate knowledge (Scotto Di Carlo, G., 2015) in TED talks, is viewed through a screen of the artist interpretation, making the message less relatable which is viewed as the strength to leadership communication (Harris, J. and Kim Barnes, B., 2006). Indeed very few people in Wales would have encountered albatrosses, and the Disney characters are fictional even though dear to people's hearts, in these instances the message is not communicated to relate to people's lives. Also, the artist is seen detached from the viewer when only looking at the artwork without any background information. From the point of view of a leader to communicate a message, the messenger plays a crucial role in a world of information overload and attention deficit (Kuran, E., 2013). For Kuran E. (2013), the content of a verbal message is forgettable whereas not the context or the stories around the message. It has the power to go viral. Where art does not seem to communicate a clear message about environmental issues using relatable stories to lead (Harris, J. and Kim Barnes, B., 2006), it relies on being memorable rather than persuasive. It uses the methods criticised by Lukas, P. (1998) where too much creativity in advertising put the focus on the advert itself but not on the product, the content (Kuran E., 2013). It emphasises the fact that the strength of any artwork to convey a message is to be memorable being the messenger and the message at the same time.

Using creativity to sell an idea is a cultural phenomenon: culture is propaganda (Paraschos, M., 1998). It is not only about communicating a message but selling a product in commercial settings, persuading in educational settings and being memorable in artistic settings. While propaganda is controlled information and controlling information at the same time to gain commercial or political power when used by governments, it gives power to the masses when the movement is global. When a message is spreading reaching a great number it can re-determine the reality (McLaughlin, B., 2020). The strength of a message resides in its capacity to spread and show a different vision. Because art is a snapshot, not a whole story, it is only a memorable messenger. This allows the artwork to keep a certain neutrality that allows the message within the artwork to not convey fear which is the opposite way of persuading people to care for the environment (Stern, P.C., 2012). However, it does not convey hope either. Being only in the viewers' memory does not make art a vehicle for action which is where hope for a better environment comes from (Stern, P.C., 2012). This point of view is shared with Bailey E. (n.d.) when talking about circular economy and industrial symbiosis. The message should not be about the environment like an environmental artwork is. It should tell the stories of action to give hope, give a glimpse of possibilities including industrial

symbiosis successes. Storytelling is the base for reaching a circular economy because the general public drives the change. It is the actions that would have the largest positive impact which depends on the popularisation of the message of circular economy and its adaptability to various types of SMEs. Art wherever it spreads is limited to a memorable messenger that can reach a great number of people but lacks the ability to call for action. Advertising a cause, while showing an issue aesthetically to stay in the viewer's mind for some time, is far from motivating SMEs to change their way of operating. Comparing environmental art's focus on the message and greenwashing for businesses which is a message with a narrow view to hide the rest shows that despite the first showing the truth and the other disguising it, they both highlight the problems rather than finding solutions. That is why art needs to trigger actions to be effective. Knowing that SMEs' focus on sales growth can push for incremental innovation (Oke, A., Burke, G. and Myers, A., 2007) with the SMEs' capabilities to overcome the challenges it creates (Usai, A. et al., 2018) and that greenwashing impacts on sales and reduces involvement in green consumption (Kreczmańska-Gigol, K. and Gigol, T., 2022) it demonstrates that a message is not only ineffective but also a waste of opportunities to make a difference in the local economy.

THE MESSAGE INTO ACTION

The examples cited above are the results of artists' intentions to send a message to the public regarding the natural environment and waste created by human activities. One could even argue that choosing waste materials as a medium to create artwork is an economical solution, not a campaigning choice while still looking for an aesthetic. Even though it is true, it still demonstrates that using someone's waste to create a new object is a valid answer. An artwork may fail to get people to change their habits but it shows the possibilities of using waste to create a valuable object. Art can shift from calling for action to bringing actions. The scale of the waste used in these artworks is a drop in the ocean. Similarly, bags companies like Freitag using truck tarps, Elvis & Kresse using decommissioned London fire hoses and Coterie Leather Bags using remnants of upholstery leather are all using waste. These companies from the internationally recognised Freitag to the craft woman in rural Wales Coterie Leather Bags have a limited impact on waste: the amount they use is only a fraction of the amount produced; also, they do not address the end-of-life of their products nor how local their material sourcing is. They depend on the appeal of their products to value waste. The approach they adopted is not part of a symbiosis, they function as an isolated initiative led by economic motives. This is where art can push boundaries and reach activism. As Léger, M.J. (2016) reported Nato Thompson's words from his review of "Seeing Power", activist artists are more likely to inspire change because of their capacity to find their way between

different fields and infrastructures. This point of view describes in some way one of the three roles of the artist identified by Gaztambide-Fernández, R.A. (2008) the “Border Crosser” when the artist

challenges boundaries, rules, and expectations and disturbs the social order to promote social transformation.

The place of artists in society does not belong to any industrial sector nor to any administrative bodies giving them the freedom to collaborate with any of them. If this independence allowed them to create a micro utopia, artists are now moving towards more social actions (Flynn, A., 2016). The Arte Útil platform which features creative initiatives with a social impact aims to inspire more social initiatives and fit in with this new role of the artist. Translated as useful art, the 2013 art movement Arte Útil positions art as the antipodes of Oscar Wilde’s words “All art is quite useless” in his preface to his Picture of Dorian Gray. The concept of the movement is that of a membership organisation gathering resources from projects where art was the vehicle for changes in communities, bridging the gap between the theory around societal issues and practice via connections from various places and applications. What can no longer be defined as an art movement, pushes the boundaries to be a platform for examples of social initiatives. However, there is an underlying radicalism in some projects featured on the platform. For example, a project that took place between 1827 and 1830 presented an economic alternative model. Created by the American anarchist Josiah Warren, his time store valued products not with monetary value but with a time value exchanging labour hours for labour hours at costs (Kemple S., 2010). Even though this example does not relate to waste, it demonstrates that for art to be considered as an option for SMEs, it cannot revolutionise the economic system, pushing the boundaries too far. When artistic interventions are viewed as anticapitalist and anticolonial movements on the American continent to oppose the gentrification of towns (Dango, M., 2021), it can be analysed as spontaneous and unorganised having only a temporary impact (Sholette, G., & Lippard, L. R., 2017) with no long term benefits, with no threat to the survival of SMEs. When alternative worlds which are present in popular culture, including virtual reality, are analysed as anticapitalist creative practices (Leavey, S.T., 2021), they entirely disconnect from the everyday lives of business owners. Art activism may be regarded as a social art form where art transcends aesthetics and its message and manages to be communicated to the viewer as either anti or pro. When anti, it positions itself as an opposition to businesses’ social order like capitalism. Between the short-term momentous actions and the imaginary ones, art doesn’t seem to be the right expression to engage small businesses in social causes. On the other hand, when pro, it supports either decentralised powers, political transparency, democratic and participatory politics, and freedoms (Frostig, K., 2011) which can be the analysis of the ideal business environment where employees are made aware of a company’s position, have a say, and participate in decisions, the prerequisite to flat structured companies and

holacratic organisational models. Like art activism when supporting decentralised power, holacratic structures can bring chaos making their application questionable (Krasulja, N., Radojević, I. and Janjušić, D., 2016). In business, when observing the outdoor brand Patagonia, their political positions and activism do not originate from the self-organised employees, but from the founder and his beliefs that translate into collective business choices to support a cause. His voice is followed by the employees and the brand's customers creating a community rallying for a cause. Activism starts with a citizen's voice: a founder or someone who is an advocate of the environment, not a company defending its interests (Stanley V., 2020). Activism in society gives power to the people whereas, in businesses, it gives legitimacy: a business can be profitable and defends a cause. For Mark Kennedy, activism goes beyond and shapes companies, making or breaking them (Myers, M., 2017). They are the external voices he calls 'Shapeholders' that influence businesses' Corporate Social Responsibility policies. A business is not profitable despite activism but because of activism. It brings innovation and resilience to companies. It is a risk that must be taken into account and become part of the strategy (Ho, V.H., 2016).

If engaged art is a moment of activism and activism influences companies, it means that artistic interventions can influence companies to some degree, pushing an artist's practice into a societal praxis. However, the studies show that activism which has an impact on companies relates to large corporations like Patagonia and start-ups. This level of uncertainty is not conclusive that art activism can influence SMEs in rural Wales regarding their waste management. Also, art activism analysed by Sholette & Lippard (2017) as a temporary movement of protest with anticapitalist beliefs cannot succeed in bringing the needed trust to create the social network for a successful industrial symbiosis (Rincón-Moreno, J., et. al., 2020) especially coming from an external actor like an artist. It would be difficult to imagine the anticapitalist Solarpunk movement (Steinkopf-Frank H., 2017) influencing existing Welsh SMEs. This remark is aligned with the "clan" discourse where environmental progress is considered a byproduct of economic development (Berg P. et al., 2021). This discourse was noticed when observing how the energy transition to renewables was perceived at a local level. For Berg (2021), the "clan" discourse relies on a predisposition where the incremental innovation is not far off from the traditional way, or 'business as usual'. Not rocking the boat is the exact opposite of the Solarpunk movement which calls for radical innovation where nature and technology work together to reach an ideal society. Radical innovation is the result of radical optimism where utopia proposes an alternative future (Hamilton, J., 2017). The movement was defined in Brazil in 2011 proposing imaginary worlds where energy is decentralised and accessible to all, combining a social ecology with a democratic technology (Reina-Rozo, J. D., 2021). Its aesthetic takes the viewer into a utopian science fictional world where humanity is in symbiosis with nature without denying the place for technology. Its manifesto celebrates frugal innovation and

local solutions. The potential of utopia is not present in the adoption of radical innovation but in its pedagogical value (Johnson, I., 2010). The focus is not targeting SMEs but school-aged children. Fictions transmitted by Solarpunk to imagine a better world combine an aesthetic and a narrative. That is to say that actions to protect the environment are the responsibility of the future generations who have been given the tools, like the platform Genus challenging children into missions in their everyday activities.

The other approach to action towards zero waste using industrial symbiosis is when radicalism and education together allow for experiments when universities are transformed into living labs for a holistic approach to the climate crisis (Howarth, C. et.al., 2022). Celebrating praxis to transform the world, Howarth (2022) supports the idea that the top-down approach is not fast enough to change course and save the planet, and that

collective self-governance of common resources can be superior to governments.

This view is confirmed by the theoretical research conducted by Ghali, M.R., et.al. (2017) where it shows that there is a correlation between social links and the potential for self-organised industrial symbiosis. This gives communities the power to create a praxis, and for art to be an actor, it needs to rally people like art can.

COMMUNITY ART TO TAKE ACTION

If environmental art is very much the result of an artist and their team's work, it lacks exposure to the general public and community engagement to enable actions to protect the environment. The impact of an initiative finds its strength in community engagement. For this to happen a sense of community must exist. If in the 19th century, communities were defined following social economic systems (Iadicola, P. and Ashton, P.J., 1987), they are now defined by a sense of community which in turn is defined by a sense of place. It can be physically demarcated by boundaries not by shared values or a single objective (Azzopardi, A., 2011). The importance of space and location explains why, when questioned, residents associate the sense of community with their everyday life (Dinnie, E. and Fischer, A., 2020). Characterising a sense of community with who people meet in their everyday life would mean that an industrial park or a high street would be enough to create a sense of community for people working there. When considering the sense of community as an entity, it relies on a commonly accessible natural space (Rugel, E.J. et al., 2019). But it can also be defined by a commonly used working space (Garrett, L.E., Spreitzer, G.M. and Bacevice, P.A., 2017). This view explains the reason why business parks are reimagined with places propitious to collaborative work (BCO, 2019). All of the above are public spaces, so in effect, the sense of community can be facilitated in any open spaces like shops and community centres (Francis, J. et al., 2012). When

observing the particularities of Wales, there are 438 community centres with a minimum of 9 in the Swansea area and up to 38 and 42 in the larger areas respectively Powys and Gwynedd (BCT, 2020), showing that open public spaces are made available all across Wales. While covering the whole of the country is necessary to be able to get SMEs involved in the zero waste project wherever they may be based, it appears even more important that the said community centres offer recycling services. However, only 16 of the 438 offer this service (BCT, 2020). This shortcoming could be fulfilled by the higher number of art centres, the second largest number of specialised centres after cafes, counting for 81 of the 438 centres. These can be complemented by centres with non-specialised centres offering spaces for mixed uses (BCT, 2020). The existence of a community centre does not necessarily means that the people who develop a sense of community will engage to improve any aspects of said community.

What can be called the next stage after the creation of a sense of community is community development. The passage from one to the other happens when the purpose of the community switch from a way of defending its members while managing resources to organising regeneration projects with volunteers (Azzopardi, A., 2011). This passage from a reactive motivation to a proactive approach is accompanied by a transfer of power from the public authorities to the individual (Dinnie, E. and Fischer, A., 2020). When comparing two methods of decentralisation regarding energy: community-based and local authorities based, the community-based method is beneficial in the long term because it facilitates societal transformation, whereas local authorities' initiatives are found relying on private investments to bring economic growth without considering communities specifics, looking for a transposable solution (Devine-Wright, P., 2019). One can wonder if communities were involved, would the scandal of illegal dumping of public waste in Northern Ireland have happened (Wray D. D., 2023)? Local authorities i.e. councils are infected by the fear of finding out (Ashby D. and Taylor L., 2023) making the problem of waste a systemic criminal activity all across the UK. Transferring national policies into local applications has its benefits: it allows direct funds to support local specific environmental projects (Sharma, V. et al., 2014) however the management remains invisible to the general public, lacking transparency. Whereas transferring waste management to communities, using the benefits of active communities, put the responsibility on communities themselves for their well-being, not relying on government interventions (Azzopardi, A., 2011) guaranteeing transparency. Communities not only complement local authorities in rural areas (Dinnie, E. and Fischer, A., 2020), they are responsible for their own socioeconomic living situations (Azzopardi, A., 2011). Even though there are no obvious links between the development of a community and the creation of an industrial symbiosis because the latter seems to be defined at a local level considering the commercial aspect of it. However, it can be argued

that to guarantee its longevity the industrial symbiosis should function like a community; it can be defined as the necessary 'embeddedness' which:

have a positive impact on the degree of flexibility, innovation and generation of value associated with IS exchanges. Main components were identified as characterising embedded relations in IS networks: 1) trust; 2) fine-grained information transfer; 3) joint problem solving and 4) multiplexity (Domenech Aparisi T. A., 2010).

Another similarity between industrial symbiosis and community development is that it forces its member to find consensus and accept their differences to resolve common issues creatively.

In Britain, community art activities of the 1970s, 1980s were the politically engaged actions of artists rallying communities to criticise materialistic western societies. From the 1990s artists involved in community art were commissioned to rebuild communities becoming part of political agendas and receiving financial support. But now community art has new causes to fight for example protection of the environment and climate change (Jeffers, A., 2017). The good intentions of community art are confronted by a series of critics. For Lowe, S.S. (2000), community art is ephemeral where the solidarity and the identity of the community only exist during the project while temporarily building relationships. For Pollock, V.L. and Sharp, J. (2012), community art is unpredictable because the group dynamics take over forgetting the initial objective. It even damages the community as a feeling of failure gains its members because they were asked the impossible in the first place. This view complements the one of Wong, S.K.S. (2019) for whom community art loses its fun and participative benefits when the project defends a cause and depends on the artist's final touches, transforming the project into an example of tokenism. These analyses with the absence of both durability and objective make community art anecdotal. These difficulties for community art to be perceived as impactful for the community add to the fact that the projects fall into the anecdotes category because they do not emerge from a need: it is an idea that becomes a reality because funding is made available and it would be a lovely thing to do. On the other hand, an industrial symbiosis project starts with a need: a top-down compliance or legal requirements (Lybæk, R., Christensen, T.B. and Thomsen, T.P., 2021) or a search for a cost reduction (Sellitto, M.A. et al., 2021). There is also an increasing demand from stakeholders for companies to do their bit for the environment (Chițimiea, A. et al., 2021). The difference in perception between the need for companies to collaborate in an industrial symbiosis and the commendable intentions of a community art project is justified by the fact that no town would need a new mural to advertise an idea. The shift in conceptualising the community's art from an anecdotal project to an impactful project should happen again via education. In general, the cause for art education to be perceived as superfluous, being the first one to go when financial struggles are raised, is because it focuses on the acquisition of artistic skills rather than being part of the general curriculum while addressing

essential skills, for instance: critical thinking, problem-solving and existential questioning (Darts D., 2006). This call for steering art education into meaningful skills would favour the need for artists to enter classrooms to debate about social justice (Schlemmer, R.H., Carpenter, B.S. and Hitchcock, E., 2017) and the environment by extension. A similar discourse specifies community art as an educational tool to nurture students' social consciousness, and even drive social change thanks to partnerships between communities and professionals (Harris Lawton P., 2019). The professionalisation of community art is not only due to their partnerships with corporations, charities and governments (Jeffers, A., 2017), but because it ought to be thought of as a managed organisation with long-term plans to be sustainable (Azzopardi, A., 2011) redefining the artist as an entrepreneur (Bryant, J., 2019). Where community art matches the idea of embeddedness (Domenech Aparisi T. A., 2010) of a successful industrial symbiosis is when the art practice is useful and creates the community by commoning, acquiring an ecological methodology, being socially engaged but also curating (Nikolić, M. and Skinner, S., 2019). Arte Útil projects or featured community useful art projects should, as formulated by the artist and curator of the movement, Tania Bruguera:

1. *Propose new uses for art within society*
2. *Use artistic thinking to challenge the field within which it operates*
3. *Respond to current urgencies*
4. *Operate on a 1:1 scale*
5. *Replace authors with initiators and spectators with users*
6. *Have practical, beneficial outcomes for its users*
7. *Pursue sustainability*
8. *Re-establish aesthetics as a system of transformation (Arte Util, n.d.)*

The idea of an international catalogue for creative initiatives actioned by individuals or collectives is the basis for art to be a vehicle for social change. It gives an artistic side to a created method that shifts how people act to resolve social issues. What usually starts as a way of cutting down costs for the reason behind the creation of an industrial symbiosis, the first stage 'emergence' has the opportunity to evolve into the 'probation' period when the 'embeddedness' is required to make the exchange of waste/resources happen with the community development through art. However, a community art project is fixed in terms of participation, whereas a successful industrial symbiosis will achieve the third stage 'development and expansion' (Domenech Aparisi T. A., 2010). Even though community art projects are not expandable like a network of companies involved in an industrial symbiosis project, the platform aims to inspire and multiply the initiatives, while the

purpose of the movement is to eliminate the idea of the viewer and introduce the idea of the user with all that it entails:

use, misuse, transformation, and repurposing, challenging old categories such as ownership, authorship, spectatorship, and intellectual property rights (Arte Util, n.d.).

The concept of a user replacing the spectator surpasses the notion of total work of art or Gesamtkunstwerk imagined by Richard Wagner. Imagined as a theatrical event by Wagner, it exists outside of the reality of society, like a staged city which is what themed parks are (Roberts, D., 2017). Instead, it involves citizens who are the co-creators of the projects, adapting the reality to experiment with the artists (Mitchell W.J.T. and Tania Bruguera, 2016) rather than forcing an ideal and a political agenda with an artistic social political artwork (Steinhoff A.J., 2016). Total work of art imagined by Wagner is analysed by Smith M. (2007) as a “communal work of art”, “collective work of art”, “combined work of art” and “unified work of art”. This notion pushes the multiplicity of themed environments to a single totalising system which is illustrated by the ‘total immersion’ of cyberspace to recreate a more perfect social order (Smith M., 2007). The danger with that compared to community art, as defined by the useful art movement, is the authoritarian and totalitarian approach to applying art to society. The danger of a totalitarian vision of art with social ambitions is the reason why art in its total and radical call for transformation must not be the answer to develop an industrial symbiosis but can only be the repetition of adapted creative initiatives reflecting the particularities of communities with a responsibility to each other and the planet (Nikolić, M. and Skinner, S., 2019). That is why the object of further research will be the projects featured on the Arte Útil platform as curated by the artist Tania Bruguera, further referred to as featured projects or community useful art projects.

2. METHODOLOGY

A ARTE ÚTIL STUDY

This chapter discusses the methods to assess the applicability of useful art, as curated on the Arte Útil platform, onto SMEs to create industrial symbiosis networks in Wales. To give a general overview of the art movement, the hundreds of community useful art projects will be evaluated

against parameters that apply to all of them. This method should give an overall idea of what these types of projects can achieve regarding industrial symbiosis and zero waste. The secondary research already established that useful art as a community art movement can build trust. The question remains if any of the featured projects can use waste as resources at a local level and start consolidation of data. This study will also establish whether or not SMEs are involved in any of the featured projects. In theory, the idea of community useful art projects involving SMEs to reach zero waste fits in the criteria of the Arte Útil movement following the eight points mentioned above:

1. Art as collective local projects to eliminate the commercial waste generated by SMEs in Wales
2. Viewing waste as a valuable resource
3. Unsustainable overconsumption in Wales
4. Implementing projects using actual waste generated as opposed to theoretically imagined projects
5. Projects initiated by a facilitator similar to an organised industrial symbiosis project. Projects creating SMEs beneficiaries
6. Creating connections with user SMEs to reduce waste costs
7. Participating in a more circular economy
8. Value commercial waste to create valuable items

The literature review allows to identify several areas that need to be assessed which can be described as the four Ws: where, who, what and when or, in this case, how long. These questions form the basis for answers needed to assess the validity of each hypothesis and determine whether or not art can play a role alongside SMEs to achieve zero waste in a form of industrial symbiosis. The answers to these questions are sampled in the 288 archived art projects made available on the Arte Útil platform using these parameters. The where establishes the type of location, either urban or rural as the most recent figures found concerning Wales allow to describe Wales as a rural country. The who branches out into different criteria. One determines the involvement of the artist and whether tokenism is avoided when considering useful art rather than community art. Another qualifies the engagement of the community during the life of the featured project and not only during the creation of the featured project: the user the community useful art project serves and the potential involvement of SMEs. And the final one assesses the reach in terms of who and how many. The when which has become 'how long' validates the sustainability of the featured project. Depending on the initial plan, the longevity of the featured projects will inform if each offers a short-term solution or a long-term solution. The what describes the nature of the results from the featured project. It organises the outcomes with the action as the final objective as a way to classify the

methods used by the community useful art project. This final stage happens when the featured project alters the users' life habits. The outcomes of the featured projects are the starting point for action, a method, if they are not action themselves, demonstrating their utility via the social and political effects (Nossel, S., 2016). The classification of these outcomes is organised following four levels reflecting the favourable conditions for a successful industrial symbiosis. Knowledge is seen as the first stage as it was identified as one of the main missing factors that hinder the implementation of industrial symbiosis (see Introduction), including the notion of industrial symbiosis and the advantages it could bring to companies (Neves, A. et al., 2019). Another outcome that will be identified when assessing the featured projects is the collection of data because it was identified as one of the essential conditions for successful industrial symbiosis (Rincón-Moreno, J., et. al., 2020) as a tool to use information as well as to share information (Neves, A. et al., 2019). In effect when data is used two ways: input and output, information sharing becomes an essential tool between stakeholders at a local level, without considering the potential of big data. The third level before action is the tool and methods, it is the 'How to' stage giving instructions on what to do to make the intentions of the featured projects come to life. The final stage is art as action where the artist meets the activist to become one: the activist. These community useful art projects transform an idea, even a utopia into a realistic view with a multitude of actions anchored in the social reality at a real-life scale (Nikolić, M. and Skinner, S., 2019), leaving no room for totalitarianism and authoritarianism view (see Section 1) because the art movement is founded on the engagement of the communities with all its diversity and account of marginalised people.

DATA COLLECTED

The purpose of collecting this data is to get a broad picture of what useful art entails on the international scene and make a comparison between some specificities of the art movement and the prerequisites of a successful industrial symbiosis to manage zero waste at a local level built by the communities for the communities, rather than a centralised level which appears to be failing (see Introduction). Looking at art as a mean to drive social changes is not new but looking at art through the social aspects of industrial symbiosis with the view to accelerate the route to zero waste would be an interesting experiment rallying SMEs to the cause. The question can be summarised as whether community art projects qualified as useful art with the potential to inspire similar projects elsewhere are planned for the long term, considering waste as a resource while involving SMEs. The data collected for this primary research was informed by the preliminary findings in the literature review. Each art project featured in the archive was characterised and measured using both quantitative data as follows:

- Longevity in years when stopped or marked as “ongoing”.

- Town size from less than 10,000 inhabitants for a rural area to a megalopolis of over 1 million people.

And qualitative data as follow:

- Maintenance to identify the implication of the artist(s) initiator(s) throughout the lifetime of the project.
- Users to highlight the implications of SMEs
- Goals to identify projects which value waste as resources.

And finally, qualitative data is translated into numerical values as follow:

- Location parameter, from the neighbourhood to the international scale (1 to 4).
- User parameter, from limited exclusive access to open to all (1 to 4).
- Action parameters, from sharing information to applying the idea to the real world (1 to 4).

These numerical values on a scale from 1 to 4 were all applied to the three parameters to be able to make a comprehensible comparison.

LIMITS

The consolidation of data proved difficult when no location was mentioned for the project, making it impossible to take the project into account for analysis. When several locations were mentioned, the smallest was selected for analysis to gauge how rural the project appears to potentially be for the purpose of this research. Also, when the project was online it was ignored as the research focuses on the physical locality. This research relied on manual data entry, and the time constraints did not allow for the recommended double entry (Barchard, K.A. and Pace, L.A., 2011). However, the risk of distorting the results can be considered minimal as the majority of the analysis is based on descriptive statistics. Entry errors were identified as having a great impact on correlation coefficient calculations (Barchard, K.A. and Pace, L.A., 2011). But the data entered for two of the three coefficients were based on scaling qualitative data, which can be seen as disputable. No double entry was performed to base the results on confirmed results, due again to time constraints.

UNEXPLORED METHODS

Analysing an art movement, via statistics, to discover whether or not art can be a valid ally to bring SMEs in Wales to collaborate around the objective of zero waste, allows to have a truer

representation of the nature of the featured projects representing the movement, and identify if the implication of SMEs exists as well as the question of waste.

Another option would have been to select a few projects, preferably valuing waste, to conduct case studies. However, not only the time constraint of this dissertation would have limited the depth of research, which would have probably needed interviews of the artists who initiated the selected projects, but also it would have focused on projects that may have been the exception to the standard projects fitting in the art movement. This does not mean it would not have been valid but there would have been a risk of not being transposable to the particularities of Wales.

On the other hand, focusing the research on SMEs in Wales could have identified the practicalities of involving art in a zero-waste project at a local level. However, there would have been an element of risk for the SMEs to not respond to the idea of art having a say in the way they deal with their waste, due to the lack of understanding of what useful art offers. This would have needed a research to identify the intrinsic notions of useful art to disguise the final view of the questionnaire. This method may have been a cause for discussion around the validity of the answers obtained that way. This method may have needed validation with a survey to gauge the potential for art projects to lead the way towards zero waste.

The ideal method for a definite conclusion on the question raised for this dissertation is the experimental method which would have highlighted the issues and obstacles to overcome for art to play an active part in reaching zero waste with the collaboration of SMEs in Wales. This method could be the possible further research to inform and validate the research undertaken in this dissertation.

DETAILS OF THE METHOD USED

The data collected from the archive of art projects featured on Arte Útil platform, will be presented numerically to portray the art movement in its entirety, and graphically to communicate in a directly and objectively using pie charts. The aim of the descriptive statistics used in this research is to present data logically, with meaning and efficiently (Vetter, T.R., 2017). The descriptive statistics methodology used in this research allows for calculation, description, and summary (Vetter, T.R., 2017) objectively, giving a base for future analysis. The figures based on quantitative data include the size of the town per number of inhabitants and the number of years the featured project lasted. The figures describing each project with identical scaled parameters across the board for consistency will be able to communicate a score visually without the use of graphs. Scaling qualitative data such as the degree of outcomes from information to data, to tool and method, and to finally action implies that one is superior to another. This allows each featured project to follow

the same configuration (Guttman, L., 1944) in regards to their relationship to the final level: the action, or in this research implementing zero waste. The descriptive statistics are represented by percentages to identify the frequency of the answers to the questions who, what, where and how long (Vetter, T.R., 2017).

With descriptive statistics analytics, this research will be based on a correlation matrix which is the first stage of analytics for any data (Bedian, A.G., 2014). The use of Pearson's correlation coefficients will inform whether or not a specific type of geographical spread as well as a particular group size of people tends to generate a certain outcome in either information, data, tool and methods, or action.

3.

RESULTS AND DISCUSSION

RESEARCH AIM - SUMMARY

This chapter will highlight the potential adequacy of community useful art projects with industrial symbiosis projects involving SMEs across Wales to reach zero waste at a local level. This primary research is based on the statistical analysis of the Arte Útil platform which was identified as a collection of activism projects involving communities across the world. Points identified regarding the social aspect of industrial symbiosis and throughout the analysis of the secondary research will be looked at:

- The involvement of SMEs,
- The long-term applicability,
- The geographical expansion,
- The use of waste,
- The engagement of communities,
- The nature of activism.

Questioning the involvement of businesses and the longevity of the project is identifying the sustainability of an art project involving local businesses and the nature of this involvement. The objective of using the characteristics of community useful art projects is to not only deliver a

message but get replicated across a country to accelerate the implementation of zero waste all over Wales. Apart from the technical characteristics listed above, the social characteristics of community useful art projects are identified as the fundamental conditions for optimising industrial symbiosis. The social objectives of industrial symbiosis should be prioritised as they are a constant regardless of the fluctuation in supply and demand because they are not affected by the cost nor the environmental performance (Afshari, H. et al., 2020). Alongside the social aspect of community useful art, activism exists at the core of the projects, it is the reason for starting the projects. As it becomes apparent that activism is becoming a tool for companies to reach their ESG performance, it is not viewed as hindering the success of a company but is a newly established condition for its attractiveness to customers and investors alike. They may not affect stock prices and trading volumes like large companies but they persuade investors to invest more and for longer (Durand, R., Paugam, L. and Stolowy, H., 2019). This might indicate that bringing environmental activism into SMEs in Wales could allow them to attract funding for innovation. The research here will list the four selected types of outcomes created by the activism within the featured projects: information, data, tool or methods, and action. These outcomes were categorised this way because they relate to what industrial symbiosis lack of to be successful. The data will summarise the proportions of each type of outcome to highlight the chance of community useful art being applied to industrial symbiosis.

GENERAL DATA - PRESENTATION

The projects featured on the Arte Útil platform can be labelled with any of these seven subject areas: urban development, scientific, pedagogical, politics, economy, environment and social. A project can appear in multiple subject areas. They represent the nature of the solution brought by the featured project. When exploring the archive of the platform that is still visible, **86** projects are featured under the label urban development, **35** labelled scientific, **99** labelled pedagogical, **103** labelled politics, **159** labelled economy, **71** labelled environment and **230** labelled social, demonstrating where the focus for these **288** projects resides (see Table 1).

Category	Overall percentage
Scientific	12%
Environment	25%
Urban development	30%
Pedagogical	34%
Politics	36%
Economy	55%

Category	Overall percentage
Social	80%

Table 1. Categories overall percentage in ascending order

When looking at the featured projects in detail, **26** projects use the principle of circular economy and zero waste. This represents **9%**, the smallest portion, which is an indication that community useful art may not be the answer to implementing zero waste across Wales. However, the interesting point resides in the fact that only **16** projects are labelled as having an environmental objective, and the other **10** all have social objectives. This point reveals that zero waste is nearly as much a social problem as an environmental one. All the zero waste projects entering this social category include one of the principles of circular economy: repair, recycle and reuse. This also reveals that waste should be seen as a social problem, not an environmental one. Waste is not a problem limited to the planet but affects humans' lives: they are intertwined (Dreau, A., 2022). Ceredigion exports 88% of its plastic waste to Spain (myrecyclingwales.org.uk., n.d.) which has a plastic recycling rate of 43% (Fernandez L., 2022). This trading is a typical example of how plastic waste produced in the UK is treated: sent abroad to poorer countries to become the recipient country's problem with Turkey, Malaysia, and Poland being the top destinations (Laville, S., 2021). It becomes a global social and political issue, which needs local solutions with local initiatives like second-hand shops, artists converted into informal recyclers, and applications technology gathering data (What Design Can Do, 2021) very similar to the community useful art projects featuring on the Arte Útil platform with even an artist as an initiator.

GENERAL DATA - THE UNKNOWN

The limits of this introduction to the Arte Útil featured projects are the fact that these projects are curated: for instance, there are **288** projects featured but with a reference number of up to **586**. It means that less than half of the projects are selected in the end. The criteria used is the repeatability of the projects. They are examples of what is possible to do to convey inspiration. So, even though the figures in Table 1 may not be representative of all the projects that were first submitted, with potentially more projects using waste as a valued resource, the use of a subjective selection based on practical criteria is satisfactory. The categories selected to describe the type of objective seem to be based on best judgment. However, some projects were left uncategorised. It is assumed that it was intentional and no categories were applied to these projects adding another level of subjectivity. Another limitation to be noted is linked to the nature of manual data entry. The double-entry technique was adopted in the case of category counting reducing the margin for errors. Also, it is worth noting that if **2** projects were miscounted, it would only affect the percentage

of the affected categories by **0.7%**, which can be considered insignificant for the purpose of this research.

SMES' NEED FOR COMMUNITY ENGAGEMENT

The transfer of responsibility from public authorities to collectives of individuals can be perceived as the consequence of growing mistrust between people and their local public authorities. It leads to a demand for the decentralisation of solutions to environmental issues. The creation of community initiatives to protect the environment is seen as the result of making the community responsible for its environment and in effect well being (see Section 1). But this is not the only deflection; from all the **288** projects featured in the Arte Útil platform, only a handful engages with businesses. The nature of these businesses is not the typical ones forming an industrial park either: farming and creative industries. Most of the groups these projects engage with, the users, are not defined by a sector of activity but by social status: victims, migrants, homeless, etc. The lack of businesses involved in the featured projects such as community useful art projects exemplifies the status quo. For instance, it illustrates the fact that it is left to communities to clean up pollution because they need the environment they live in to be healthy. What drives communities to be involved in environmental community projects is the necessity to make their common living environment better and deal with rubbish pollution themselves (Koldobskaya N. A., 2023). Communities take the matter into their own hands because they care about the quality of the environment where they live (Forsyth, D.R. et al., 2015) and this reality is used as an excuse to impute the responsibility for pollution onto consumers instead of producers (Jaeger, A.B., 2018). Companies do not get involved in social projects because they don't want to be accountable and because they don't feel responsible, deflecting to suppliers or the industry standards. For companies to take action, legislation must be put in place like the extended producer responsibility implemented nationally in France for the textile industry (Bukhari, M.A., Carrasco-Gallego, R. and Ponce-Cueto, E. (2018). But these actions are then controlled and centralised by public bodies, going back to the first issue: out of sight, out of mind. The “mental” responsibility of the company stops as soon as the management of its waste is paid, even though it doesn't cover the full costs of recycling it (da Cruz, N.F. et al. (2014). The reality of waste management by companies, including SMEs, and their general lack of regard for the end of life of their waste, unless there are costs involved.

The issue seems to originate from the absence of a connection between the wellness of the local community of a business and its everyday operating actions. One can wonder if SMEs' waste were managed locally by a decentralised system, more care would be given to where it ends up. Small businesses tend to develop a sense of place because they depend on their local social

network to thrive, sharing the culture of the community they operate (Thomas, D.F. et al., 2009). Not only do small businesses care about their local community but care about the environment where they operate as a result of sharing that caring culture. A study highlighted that a significant number of small businesses that perceived themselves as successful tend to give support to their community and show commitment (Besser, T.L., 1999). This observation should encourage SMEs to get involved in projects like the ones featured on the Arte Útil platform to better the lives of their local community. Although they may be contributing towards these projects financially via donations or sponsorship, this level of detail was not available at the time of this research. When seeking financial gain, it was noticed that SMEs tend to get more involved in the community than those who do not. However, some businesses feel that their contribution is not reciprocal with little return from the community (Johnson Jorgensen, J. et al., 2020). This issue should not occur if waste is first managed within an industrial park using a closed-loop supply chain; the gain should be for all involved while valuing waste as a resource before expanding the project and involving the local community.

ART TO FACILITATE INNOVATION

Creating an industrial symbiosis project within the community of an industrial park including low-tech SMEs requires collaborative efforts. Using art as a creative problem-solving method has proved effective when mixing groups of technology students and art students for a common project (Hsieh, C.-Y., 2017). This type of collaboration involving artists creates an energy that transforms communities where art becomes a vector for well-being (Bublitz, M.G., et al., 2019). Using this power, it would allow SMEs in Wales to innovate without the need for complicated mathematical software (Rajak, S. et al., 2021) or the financial burden of the internet of things technologies (Delpla, V., Kenné, J.-P. and Hof, L.A., 2021). An empirical study conducted with SMEs revealed that their innovation partners were in first position their suppliers, then customers, private universities and finally non-industry (Oduro, S., 2019). No third parties such as artists were mentioned as they were probably not even considered even though the outcomes could benefit both the companies and the community they operate in. However, the opportunity for artists to be involved would match the benefit noticed by low-tech businesses in the UK regarding non-formal Research and Development (R&D) activities (Trott, P. and Simms, C., 2017). The potential to achieve R&D exists when **12%** of the featured projects use technologies and science. The scope of solutions is noticeable in the distribution of the featured projects' outcomes (see Figure 1).

This research showed that the prerequisite for a successful industrial symbiosis can be provided by the useful art movement as both knowledge and data are their possible outcomes. Almost a third of the projects share data or knowledge when combined within the community which was

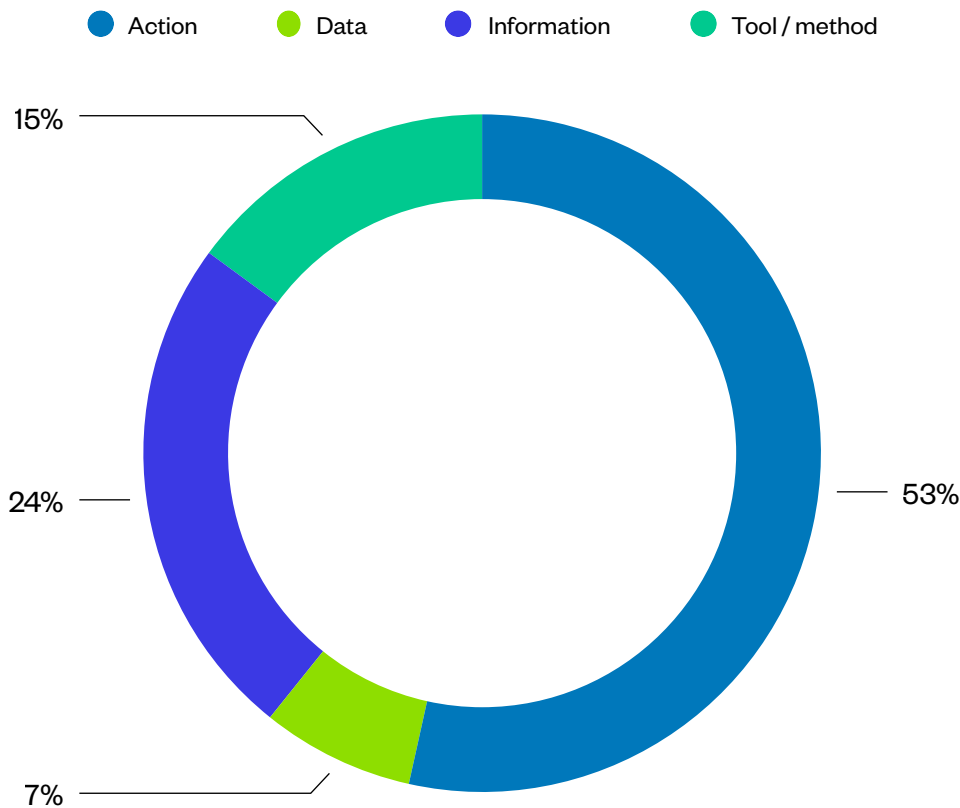


Figure 1. Proportion of each type of outcomes

identified as a barrier to industrial symbiosis when deficient: it could take the form of a recommender (van Capelleveen, G. et al., 2018), a multilingual web service (Cecelja, F. et al., 2015), all forming the basis for an algorithm gathering knowledge into an ontology model (Cecelja, F. et al., 2015b). The community useful art project would kick start the industrial symbiosis as an informal, low-tech version of Be Circle (Engie Consulting solution, n.d.). It would gather a collection of data and knowledge available for other local SMEs to use and become a tool to implement industrial symbiosis and value waste as resources. It is the type of output the European Commission encourages in its call for open data source information and exchange platforms (DGRI, 2020). This approach is not unfamiliar to community useful art projects as **15%** (see Figure 1) result in a tool or method readily available to its users, while making them free.

ARTIVISM AGAINST TOKENISM

Artivism is when art and politics exist together as practice (Danko, D., 2018). It pushes activism into art to inspire, giving art its inner power to resist and transform society (AWID Forum, 2016).

The reason for Arte Útil to give free access to curated community useful art projects is that these projects are considered replicable by the curator. The objective is to spread the solution to similar

social issues by copying it across the world. This purpose relies on the principle known as the butterfly effect; everything is interconnected: the small depends on the whole and the small impacts the whole in return, with a degree of uncertainty. The world affects the local and the local influences the global, with small initiatives turning into powerful tools some of the time (Giannetti, B.F. et al., 2021). Based on the need for an industrial symbiosis to function depending on the proximity between the businesses involved to develop a social network (Velenturf, A.P.M. and Jensen, P.D., 2016), it emphasises the need for useful art projects to connect within the local community first in order to be replicated elsewhere. This phenomenon of duplication happens only for **38%** of the projects, based on the **211** projects with a specified location, and that includes the use of the internet to have the potential of reaching the whole planet (see Figure 2). The fact that a small portion of the projects (**15%**) manages to be replicated in other towns of the same country shows

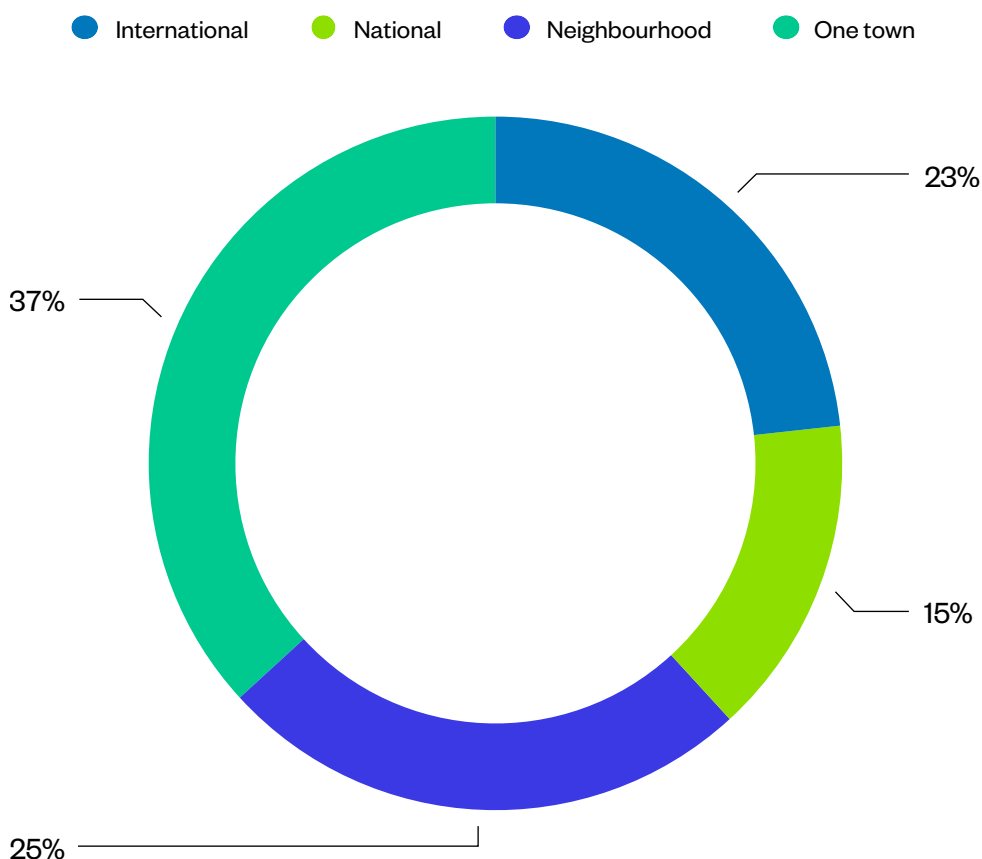


Figure 2. Areas of activity from the initial project or its branched out replicas

the difficulty for the project to be commissioned in other towns. However, it does not mean that copycats do not exist elsewhere managed by a different group and financed by different funding which would prove that the original project succeeded in inspiring. The large portion of the limited geographical area of activity is distorted by the number of megalopoleis representing **31%** of the

birthplace of the featured projects which does not apply to Wales with its small market towns and its capital of 485,000 people (see Figure 3). Whereas when selecting only small towns, the portion of

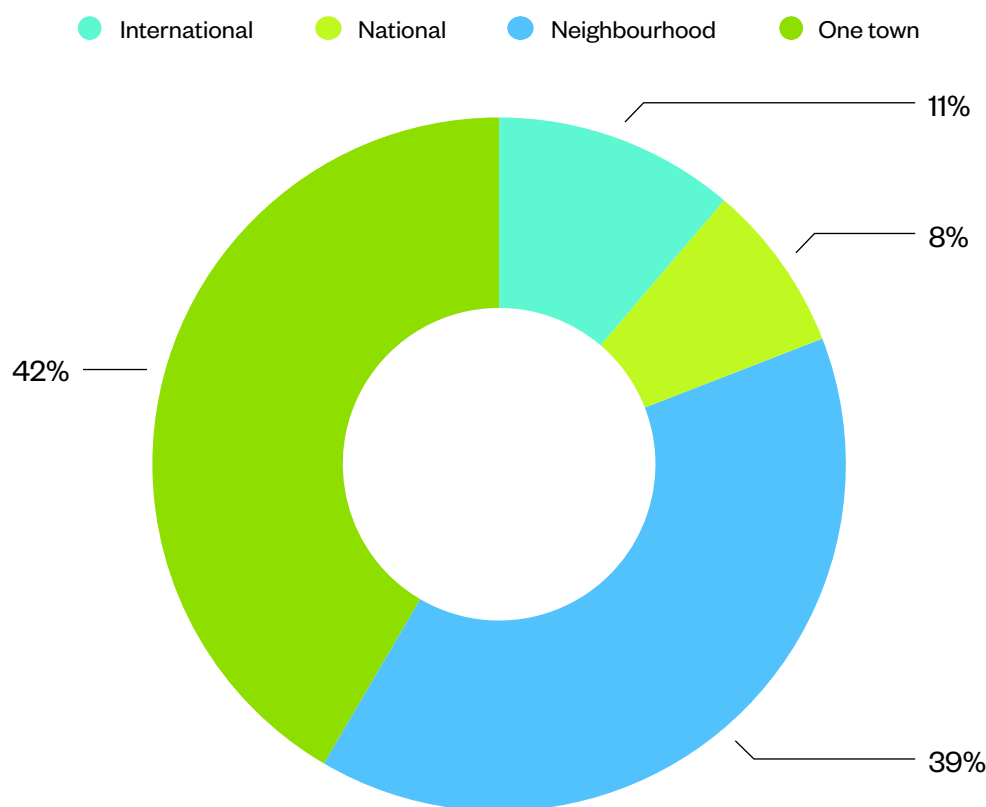


Figure 3. Areas of activity from the initial project when originated in cities of over 1 million inhabitants

projects which operate within the limits of a neighbourhood decreases by **over half** (see Figure 4). In the vast majority of cases (**70%**), the spread of the projects which have started in small towns involves the towns in its entirety. On the other hand, it reduces the chance of the project expanding nationally by **over a third** compared with a project that started in a megalopolis. This figure indicates that the scale of a project has its limits and will determine its capacity to expand. In the case of industrial symbiosis in Wales, it would mean that the focus should be on involving all of the neighbourhoods of the towns to be able to reach a significant scale.

When considering the longevity of the featured projects, some stopped because they were flawed and some because they achieve their goal. But **60%** of them are still showing their relevance (see Figure 5). Their longevity as a condition for sustainability (Pater, L.R. and Cristea, S.L., 2016) demonstrates that art projects when useful for the communities they engage with, are valued by the same communities and last. In addition to the lifespan of the featured projects, the size of the engagement is an indication of their relevance. The majority (**53%**) of the projects featured on the

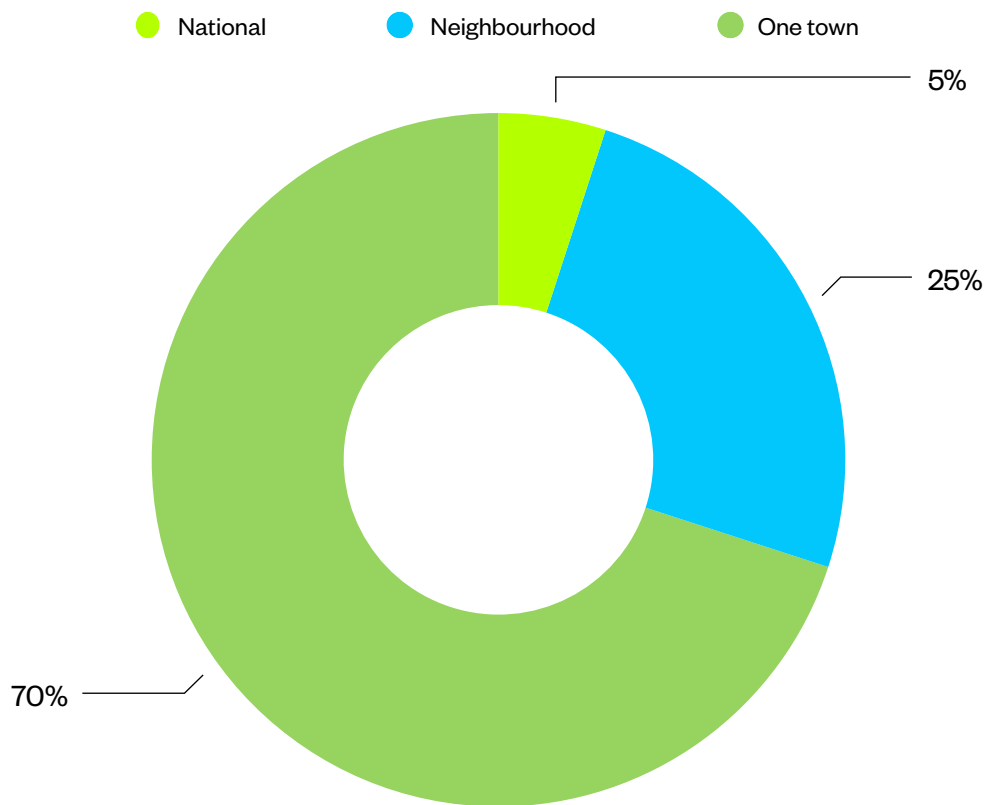


Figure 4. Areas of activity from the initial project when originated in towns of less than 100,000 inhabitants

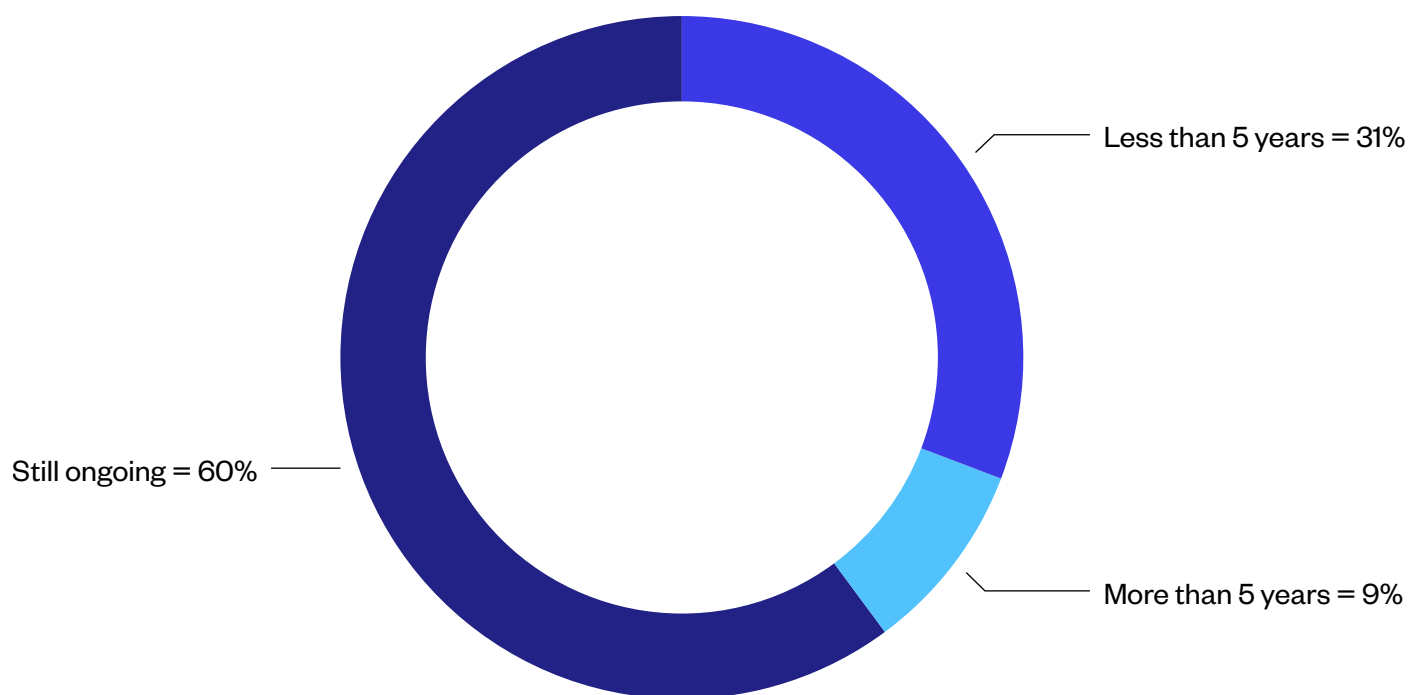


Figure 5. Featured projects' lifespan

Arte Útil platform are inclusive because they at least engage with more than one community (see Figure 6). This contradicts the view of community art as tokenism when community art becomes art for the use of the community. Tokenism happens when inclusiveness is pretended. To avoid tokenism and the problems it creates in terms of engagement and impact, participants must be respected and their contribution real (Romsland, G.I., Milosavljevic, K.L. and Andreassen, T.A., 2019) which explains why the Arte Útil movement emphasises the fact that participants are users. The longer the project exists the more people are getting involved, and the more people are involved the longer it lasts (Sancho P., Gomes R. and Pernencar C., 2021) determining its sustainability.

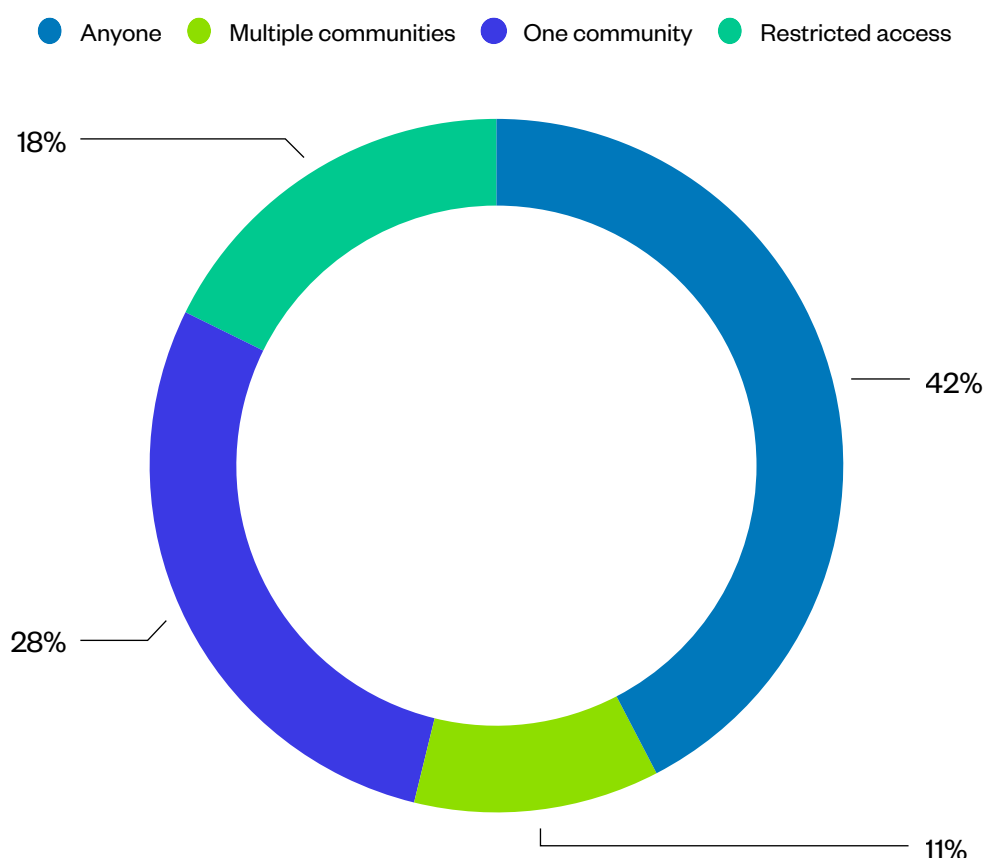


Figure 6. Distribution of community reach

One of the faults of community art that leads to tokenism is the degree of involvement of the artist to the point where the engagement of the community has become anecdotal. In this instance, only **37.5%** of the community useful art projects are maintained with the involvement of the artist initiator, the rest are managed by private or public funding exclusively, which shows that these projects are valued and given financial support and administrative support (Jacob, M. and Rocha, C., 2021) to continue. This shift from an individual initiative to a collective and sometimes public project is a clue that activism is not only valued enough to receive public funding but to be adopted as the

new standard. This shift is criticised as being anachronistic, foundation-funded and defunded by public authorities, highlighting the problem, which is still current, of the origin of the funds being in contradiction with the aim of the projects (Luke, T.W., 1996). The problem of getting funding in line with the art project credentials is similar to greenwashing where an environmental initiative is actually supported by a company with a poor environmental record. The growing demand for more transparency recently in regard to funding may make this problem disappear. The impact of activism when analysed as activism first and foremost is the potential to become the new standard, transforming society. For example, the UK-based Extinction Rebellion campaign group protests were one of the factors that led to Britain and Ireland declaring national climate emergencies in May 2019 (EIT Climate-KIC, n.d.). This amount of power from activism is far from tokenism; it changes legislation and society. Three Extinction Rebellion protesters were sentenced by a judge in 2019 (Goering L., 2019) whereas others were acquitted by a jury in 2021 (Hain, P. (2021), showing people's support for the cause.

With **53%** of the featured projects resulting in an action as opposed to a tool, it would be difficult to consider the community useful art projects featured on the Arte Útil platform as tokens. Pearson's correlation coefficients were calculated between the geographical spread, the extent of communities involved, and the end results to establish whether or not the outcomes were more likely to be an activity depending on the size of the engagement. Absolutely no correlation was found (see Table 2). Therefore the outcomes do not depend on the scale of the featured project which means no matter how small, a community useful art project can still deliver an activity worth multiplying. Another way to refute the idea that community art is limited by its token role, it is

	Location	User	Action
Location	1		
User	0	1	
Action	-0	-0	1

Table 2. Pearson's correlation coefficients between three parameters: geographical spread, size of community engagements, and outcomes.

measuring its success, comparing its affect, or intent, with its effect: the aeffect of a community useful art project (Duncombe, S., 2016); an idea that would value an activist work of art by measuring its aeffect (Nossel, S., 2016). This assessment adopts the theory of change methodology where not only the final impact is measured but the various stages of the project as well, following a monitoring and evaluation model (Rogers, P., 2017). A project featured on the Arte Útil platform can be valued by how useful it is, demonstrating its effectiveness. With this methodology, a community art project with zero waste for the objective can be evaluated.

The lack of involvement of SMEs in the featured projects might be related to the radicalism inherent to the activism underlying their social objective whereas the reasons for SMEs to not be involved with industrial symbiosis are more practical: lack of time and/or resources (Domenech, T. et al., 2019). If a project involves the community, it can either fall into tokenism or radicalism (Monno, V. and Khakee, A., 2012). This confirms the position of Arte Útil featured projects as radical because it was demonstrated that they are not tokens. The fact that SMEs are not directly involved with activism because of their radical position, does not mean that they are not compatible. A recent study of Transition Town promoting permaculture and condemning the dependence on fossil fuel where local communities took the matter into their own hands to address the climate change crisis (RTA, 2019), revealed that their presence as radical activism for the environment influences local SMEs actions to improve their environmental credentials and start developing a different approach to their consumerist agenda (Ziniel, C. and Bradley, T., 2018). However, the same study highlighted the connection between Transition Towns and the large portion of intellectuals living in these towns, influencing the local businesses' improvements towards more environmentally friendly practices. However, the risk of gentrification will lead to a risk of alienating some of the original residents. Where projects like the ones featured on Arte Útil platform concentrate their efforts on the marginalised population, they actually fight against gentrification as they are not bound by financial risks because they function with a set funded budget for the planned project. It would be interesting to study in more details the funding of projects featuring on the Arte Útil platform to evaluate how independent they are from any financial risks to be able to offer free access to prevent alienating part of the local population. From these findings, it can be concluded that a community useful art project does not necessarily include SMEs initially but the community will influence the local businesses to eventually adhere to the project.

4.

CONCLUSION: EVALUATION AND RECOMMENDATION

At the beginning of this research, little evidence was identified justifying the reason why art could have a role in the development of industrial symbiosis, in small towns, in Wales and involving SMEs, beyond empirical evidence that organisations in the art sector have developed strong links with the local community and rely on recycled materials to create artefacts and save costs. This

dissertation evolved into a quest of finding out how art could be the catalyst for reducing the environmental impact of SMEs in Wales.

The key points raised in this research are the four identified roles art can take regarding environmental issues such as waste. It can take the role of the messenger as well as the message with the support of science and facts. It can be a memorable messenger to communicate a cause. It can also be people's voice to radically transform society. And finally, it can take the role of activist and gives power to communities. These roles show that art has a binary approach to social issues, in this instance waste. Even with the backing of science, it is either an ineffective call to action or a utopia. It is only effective when it takes the form of a community useful art project. Its capacity to rally people around a cause as a community binder allows for making the parallel with the social aspect of industrial symbiosis which takes the form of organically developed initiatives, locally led (Westoby, R. et al., 2020) decentralisation of waste management and capacity to share knowledge and data. The potential of the accessibility of art through community centres present all across Wales may not be sufficient to spread and multiply an initiated zero waste community useful art project, when only 5% of the Arte Útil featured projects originate from small towns and are replicated nationwide.

This research allowed evaluation of the position of art in regard to the involvement of SMEs in activism to accelerate the process to reach zero waste in a decentralised system. It was noticed that in both industrial symbiosis and community art, the absence of SMEs was a problem to create a zero-waste economy in Wales. This research highlighted the fact that SMEs will very unlikely be the initiators to organise industrial symbiosis. However, they may get onboard trends a local community is following. Therefore, it is acceptable to affirm that a community art project with an activist environmental view can motivate local SMEs into adopting a similar approach and limiting their impact on the environment. This can be applied to projects aiming to eliminate waste as long as they involve the local community with the objective of being used by the same community. It becomes evident that if a community useful art project is to create a zero waste initiative, it will not be limited to an industrial park but involve the local communities as they would be the driver for change.

It would be beneficial to know the position of SMEs in regard to the projects featured on the Arte Útil platform: whether or not they would get involved, why and if so how. Art cannot help SMEs in rural Wales to reach zero waste using a direct approach. The possibilities exist because art projects like some of the ones featured on the Arte Útil platform have the practical outcomes necessary to implement an industrial symbiosis: free and open source information. However, it may not be sufficient to embark SMEs across Wales into an art project that decentralises waste management for the benefit of the local community with no indication of SMEs involved in the sponsorship. This

research focused on community useful art projects but did not allow to confirm that art can be the driver for SMEs to accelerate their implementation of zero-waste operating procedures with a decentralised system; even though this research gave a glimpse of what is possible to achieve using activism. To have a definitive response, it would be interesting to know how a project which creates a free open-source data platform available to SMEs would be fully funded by an organisation like the Arts Council Wales. This would demonstrate that through art, innovation for SMEs can happen because of their capacity to be independent which would eliminate the financial outlay for SMEs and give them a strategy (Levy, M. and Powell, P., 2005). The advantage of using art to innovate is the total freedom and the acceptance that art can be radical.

The beauty about art is that its purpose can be anything as long as it is presented as art (Scott-Phillips, T., 2015) giving validity to the idea of a creative initiative with zero waste as its aim involving SMEs.

REFERENCE LIST

- Afshari, H. et al. (2020) 'The effect of environmental and social value objectives on optimal design in industrial energy symbiosis: A multi-objective approach', *Resources, conservation and recycling*, 158, p. 104825–. Available at: <https://doi.org/10.1016/j.resconrec.2020.104825>.
- Aid, G., Eklund, M., Anderberg, S. and Baas, L. (2017). Expanding roles for the Swedish waste management sector in inter-organizational resource management. *Resources, Conservation and Recycling*, 124, pp.85–97. doi:10.1016/j.resconrec.2017.04.007.
- American Scientist (2019). Nature Finds a Way: Artist Stephanie Kilgast uses intricacy and color to get across a dire environmental message. (Interview by Fenella Saunders for Arts Lab) *American scientist*, 107(6), p. 338–.
- Anne P. M. Velenturf (2017) Initiating resource partnerships for industrial symbiosis, *Regional Studies, Regional Science*, 4:1, 117-124, DOI: [10.1080/21681376.2017.1328285](https://doi.org/10.1080/21681376.2017.1328285)
- Arman (n.d.). *Poubelles - Artworks - Official Website of ARMAN*. [online] Available at: <https://www.armanstudio.com/artworks/poubelles> [Accessed 11 Dec. 2022].
- Arte Util (n.d.). *Arte Útil*. [online] Available at: <https://www.arte-util.org/>.
- artfortheenvironment (2016). 'Unhappily ever after' by Jeff Hong. [online] Art for the Environment. Available at: <https://ecoartseurope.wordpress.com/2016/10/12/unhappily-ever-after-by-jeff-hong/#more-429> [Accessed 11 Dec. 2022].
- Artland Magazine. (2019). *Top 10 Land Art and Earthwork Pioneers - Artland Magazine*. [online] Available at: <https://magazine.artland.com/top-10-land-art-and-earthwork-pioneers/>.
- Ashby D. and Taylor L. (2023). *Buried - Ep. 6. FOFO (Fear of Finding Out) - BBC Sounds*. Smoke Trail Production for BBC Radio 4. [podcast] Available at: <https://www.bbc.co.uk/sounds/play/m001hp0d?partner=uk.co.bbc&origin=share-mobile> [Accessed 29 Jan. 2023].
- AWID Forum (2016). Artivism: art as activism, activism as art. 8th -11th September 2016 in Bahia, Brazil. *OpenDemocracy*, .
- Axon, S. (2016) "The Good Life": Engaging the public with community-based carbon reduction strategies', *Environmental science & policy*, 66, pp. 82–92. Available at: <https://doi.org/10.1016/j.envsci.2016.08.007>.
- Azzopardi, A. (2011) 'Conceptualising discursive communities: developing community in contemporary society', *International journal of inclusive education*, 15(1), pp. 179–192. Available at: <https://doi.org/10.1080/13603116.2010.496215>.
- Bailey E. (n.d.). *The Circular Economy and Industrial Symbiosis*. In a video session by Business Wales. [online] Available at: <https://businesswales.gov.wales/circular-economy-and-industrial-symbiosis> [Accessed 22 Oct. 2022].
- Barchard, K.A. and Pace, L.A. (2011) 'Preventing human error: The impact of data entry methods on data accuracy and statistical results', *Computers in human behavior*, 27(5), pp. 1834–1839. Available at: <https://doi.org/10.1016/j.chb.2011.04.004>.
- BBC (2022). G7 Mount Recyclemore sculpture dismantled at Eden Project. *BBC News*. [online] 13 Oct. Available at: <https://www.bbc.co.uk/news/uk-england-cornwall-63233561> [Accessed 10 Jan. 2023].

- BEDEIAN, A.G. (2014) “‘More Than Meets the Eye’: A Guide to Interpreting the Descriptive Statistics and Correlation Matrices Reported in Management Research’, *Academy of Management learning & education*, 13(1), pp. 121–135. Available at: <https://doi.org/10.5465/amle.2013.0001>.
- Bell-Villada, G. H. (1986). The Idea of Art for Art’s Sake: Intellectual Origins, Social Conditions, and Poetic Doctrine. *Science & Society*, 50(4), 415–439. <http://www.jstor.org/stable/40402974>
- BERG, P., NARAYAN, R. and RAJALA, A., 2021. Ideologies in Energy Transition: Community Discourses on Renewables. *Technology Innovation Management Review*, **11**(7), pp. 79-91.
- Besser, T.L. (1999) ‘Community involvement and the perception of success among small business operators in small towns’, *Journal of small business management*, 37(4), p. 16–.
- British Council for Offices (2019). The Future of Business Parks. [online] Available at: http://www.bco.org.uk/Research/Publications/The_Future_of_Business_Parks.aspx
- Bryant, J. (2019) ‘A Community of Sense’, in *Artmaking in the Age of Global Capitalism*. Edinburgh University Press. Available at: <https://doi.org/10.3366/edinburgh/9781474456944.003.0003>.
- Bublitz, M.G., Rank-Christman, T., Cian, L., Cortada, X., Madzharov, A., Patrick, V.M., Peracchio, L.A., Scott, M.L., Sundar, A., To, N. and Townsend, C., 2019. Collaborative art: A transformational force within communities. *Journal of the Association for Consumer Research*, 4(4), pp.313-331.
- Building Communities Trust (2020) Mapping Community Assets in Wales. [online] Available at: <https://static1.squarespace.com/static/62554a379dc7e96b0ee4c256/t/627939ee4d01406971a476b7/165211860976/2020-12-08-14-1-mapping-community-assets-in-wa.pdf> [Accessed 28 Jan. 2023].
- Bukhari, M.A., Carrasco-Gallego, R. and Ponce-Cueto, E. (2018) ‘Developing a national programme for textiles and clothing recovery’, *Waste management & research*, 36(4), pp. 321–331. Available at: <https://doi.org/10.1177/0734242X18759190>.
- CARROLL, N. (2000) ‘Art and Ethical Criticism: An Overview of Recent Directions of Research’, *Ethics*, 110(2), pp. 350–387. Available at: <https://doi.org/10.1086/233273>.
- CCEN. (n.d.). *Cardiff Circular Economy Network*. [online] Available at: <https://www.walescirculareconomy.com/> [Accessed 29 Nov. 2022].
- Cecelja, F. et al. (2015) ‘e-Symbiosis: technology-enabled support for Industrial Symbiosis targeting Small and Medium Enterprises and innovation’, *Journal of cleaner production*, 98, pp. 336–352. Available at: <https://doi.org/10.1016/j.jclepro.2014.08.051>.
- Cecelja, F. et al. (2015b) ‘Semantic algorithm for Industrial Symbiosis network synthesis’, *Computers & chemical engineering*, 83, pp. 248–266. Available at: <https://doi.org/10.1016/j.compchemeng.2015.04.031>.
- Chandler, A., Neumark, N. and Uzelman, S. (2006) ‘At a distance: precursors to art and activism on the internet’, *Communication review*, pp. 155–162.
- Chess, C. and Purcell, K. (1999). Public Participation and the Environment: Do We Know What Works? *Environmental Science & Technology*, 33(16), pp.2685–2692. doi:10.1021/es980500g.
- Chițimiea, A. et al. (2021) ‘The Drivers of Green Investment: A Bibliometric and Systematic Review’, *Sustainability (Basel, Switzerland)*, 13(6), p. 3507–. Available at: <https://doi.org/10.3390/su13063507>.
- Chris Jordan photographic arts. (n.d.). *Chris Jordan photographic arts*. [online] Available at: <https://www.beautyemerging.com/>.
- Coutts, G. and Jokela, T. (2008) *Art, Community and Environment Educational Perspectives*. Bristol: Intellect.

- da Cruz, N.F. et al. (2014) 'Packaging waste recycling in Europe: Is the industry paying for it?', *Waste management* (Elmsford), 34(2), pp. 298–308. Available at: <https://doi.org/10.1016/j.wasman.2013.10.035>.
- Dango, M. (2021). *Review of Another Aesthetics is Possible: Arts of Rebellion in the Fourth World War* by Jennifer Ponce de León (Duke University Press). *Lateral*, 10(2). doi:10.25158/110.2.24.
- Danko, D. (2018). Artivism and the Spirit of Avant-Garde Art. In: Alexander, V., Hägg, S., Häyrynen, S., Sevänen, E. (eds) *Art and the Challenge of Markets Volume 2. Sociology of the Arts*. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-319-64644-2_9
- Darts D. (2006) *Art Education for a Change: Contemporary Issues and the Visual Arts*, *Art Education*, 59:5, 6-12, DOI: [10.1080/00043125.2005.11651605](https://doi.org/10.1080/00043125.2005.11651605)
- Delpla, V., Kenné, J.-P. and Hof, L.A. (2021) 'Circular manufacturing 4.0: towards internet of things embedded closed-loop supply chains', *International journal of advanced manufacturing technology* [Preprint]. Available at: <https://doi.org/10.1007/s00170-021-08058-3>.
- Devine-Wright, P. (2019) 'Community versus local energy in a context of climate emergency', *Nature Energy*, 4(11), pp. 894–896. Available at: <https://doi.org/10.1038/s41560-019-0459-2>.
- Dinnie, E. and Fischer, A. (2020) 'The Trouble with Community: How "Sense of Community" Influences Participation in Formal, Community-Led Organisations and Rural Governance', *Sociologia ruralis*, 60(1), pp. 243–259. Available at: <https://doi.org/10.1111/soru.12273>.
- Directorate-General for Research and Innovation (2020). *Study and portfolio review of the projects on industrial symbiosis in DG Research and Innovation: Findings and recommendations*. European Commission. [online] Available at: https://research-and-innovation.ec.europa.eu/knowledge-publications-tools-and-data/publications/all-publications/study-and-portfolio-review-projects-industrial-symbiosis-dg-research-and-innovation-findings-and_en.
- Domenech Aparisi T. A. (2010). *Social Aspects of Industrial Symbiosis Networks*. Degree of Doctor of Philosophy. Bartlett school of Graduate Studies University College London [online] Available at: <https://core.ac.uk/download/pdf/1674444.pdf> [Accessed 5 Nov. 2022].
- Domenech, T. et al. (2019) 'Mapping Industrial Symbiosis Development in Europe_ typologies of networks, characteristics, performance and contribution to the Circular Economy', *Resources, conservation and recycling*, 141, pp. 76–98. Available at: <https://doi.org/10.1016/j.resconrec.2018.09.016>.
- Dreau, A. (2022). *Why is the global waste crisis a social justice issue?* [online] Zero Waste Europe. Available at: <https://zerowasteeurope.eu/2022/02/why-is-the-global-waste-crisis-a-social-justice-issue/>.
- Duncombe, S. (2016) 'Does it Work? The Effect of Activist Art', *Social research*, 83(1), pp. 115–134. Available at: <https://doi.org/10.1353/sor.2016.0005>.
- Dunn, M.E., Mills, M. and Veríssimo, D. (2020). Evaluating the impact of the documentary series *Blue Planet II* on viewers' plastic consumption behaviors. *Conservation Science and Practice*, 2(10). doi:10.1111/csp2.280.
- Durand, R., Paugam, L. and Stolowy, H. (2019) 'Do investors actually value sustainability indices? Replication, development, and new evidence on CSR visibility', *Strategic management journal*, 40(9), pp. 1471–1490. Available at: <https://doi.org/10.1002/smj.3035>.
- EIT Climate-KIC (n.d.). *Welcome to EIT Climate-KIC UK & Ireland*. [online] Available at: <https://uki.climate-kic.org/> [Accessed 24 Feb. 2023].

Engie Consulting solution (n.d.). *BE CIRCLE | What if industrial ecology was operational for you?* [online] Available at: <https://be-circle.com/> [Accessed 21 Feb. 2023].

Fernandez L. (2022). *Topic: Plastic waste in Spain*. [online] Statista. Available at: <https://www.statista.com/topics/8763/plastic-waste-in-spain/#topicOverview> [Accessed 18 Feb. 2023].

Flynn, A. (2016) 'Subjectivity and the Obliteration of Meaning: Contemporary Art, Activism, Social Movement Politics', *Cadernos de arte e antropologia*, (Vol. 5, No 1), pp. 59–77. Available at: <https://doi.org/10.4000/cadernosaa.1035.Inc>.

Forsyth, D.R. et al. (2015) 'Identity and Sustainability: Localized Sense of Community Increases Environmental Engagement', *Analyses of social issues and public policy*, 15(1), pp. 233–252. Available at: <https://doi.org/10.1111/asap.12076>.

Francis, J. et al. (2012) 'Creating sense of community: The role of public space', *Journal of environmental psychology*, 32(4), pp. 401–409. Available at: <https://doi.org/10.1016/j.jenvp.2012.07.002>.

Freire, P. (1996 Edition). *Pedagogy of the oppressed* (M. Bergman Ramos, Trans.). Herder.

Frosch, R., Gallopoulos, N. (1989) *Strategies for manufacturing*, *Scientific American*, 261(3): 94-102.

Frostig, K. (2011) 'Arts Activism: Praxis in Social Justice, Critical Discourse, and Radical Modes of Engagement', *Art therapy*, 28(2), pp. 50–56. Available at: <https://doi.org/10.1080/07421656.2011.578028>.

Garrett, L.E., Spreitzer, G.M. and Bacevice, P.A. (2017) 'Co-constructing a Sense of Community at Work: The Emergence of Community in Coworking Spaces', *Organization studies*, 38(6), pp. 821–842. Available at: <https://doi.org/10.1177/0170840616685354>.

Gaztambide-Fernández, R.A. (2008) 'The Artist in Society: Understandings, Expectations, and Curriculum Implications', *Curriculum inquiry*, 38(3), pp. 233–265. Available at: <https://doi.org/10.1111/j.1467-873X.2008.00408.x>.

Gentry, B. S., & BURKE, I. C. (2019). *Driving Systems Change through Networks*. In D. C. ESTY (Ed.), *A Better Planet: Forty Big Ideas for a Sustainable Future* (pp. 287–296). Yale University Press. <https://doi.org/10.2307/j.ctvqc6gcq.36>

Ghali, M.R., Frayret, J.-M. and Ahabchane, C. (2017) 'Agent-based model of self-organized industrial symbiosis', *Journal of cleaner production*, 161, pp. 452–465. Available at: <https://doi.org/10.1016/j.jclepro.2017.05.128>.

Giannetti, B.F. et al. (2021) 'Widening Cleaner Production scope and targets: From local to global initiatives', *Journal of cleaner production*, 325, p. 129215–. Available at: <https://doi.org/10.1016/j.jclepro.2021.129215>.

Goering L. (2019) Climate activists found guilty over London train protest by 'regretful' jury. *Reuters*. [online] 18 Dec. Available at: <https://www.reuters.com/article/us-climate-change-uk-court-idUSKBN1YM2AP> [Accessed 24 Feb. 2023].

Guttman, L. (1944) 'A Basis for Scaling Qualitative Data', *American sociological review*, 9(2), pp. 139–150. Available at: <https://doi.org/10.2307/2086306>.

Hain, P. (2021). Putting Extinction Rebellion activists on trial isn't in the public interest, so let's stop. *The Guardian*. [online] 8 May. Available at: <https://www.theguardian.com/commentisfree/2021/may/08/extinction-rebellion-activists-trail-public-interest-crown-court> [Accessed 24 Feb. 2023].

Hamilton, J., 2017. Explainer:'solarpunk', or how to be an optimistic radical. *The Conversation*.

HARRIS, J. and KIM BARNES, B., 2006. Leadership storytelling. *Industrial and Commercial Training*, **38**(7), pp. 350-353.

Harris Lawton P. (2019) At the Crossroads of Intersecting Ideologies: Community-Based Art Education, Community Engagement, and Social Practice Art, *Studies in Art Education*, 60:3, 203-218, DOI: [10.1080/00393541.2019.1639486](https://doi.org/10.1080/00393541.2019.1639486)

Ho, V.H. (2016) 'Risk-related activism: the business case for monitoring nonfinancial risk', *The Journal of corporation law*, 41(3), p. 647–.

Howarth, C., Lane, M. and Slevin, A. eds., (2022). *Addressing the Climate Crisis*. Cham: Springer International Publishing. doi:10.1007/978-3-030-79739-3.

Hsieh, C.-Y. (2017). Developing Design through a Creative Problem-Solving Process: A Group Community Art Project. *International Journal of Art & Design Education*, 37(3), pp.541–553. doi:<https://doi.org/10.1111/jade.12155>.

Iadicola, P. and Ashton, P.J. (1987) 'What is Community? A Comparison of Perspectives', *Humanity & society*, 11(1), pp. 80–110. Available at: <https://doi.org/10.1177/016059768701100105>.

Jacob, M. and Rocha, C. (2021) 'Models of governance in community gardening: administrative support fosters project longevity', *Local environment*, 26(5), pp. 557–574. Available at: <https://doi.org/10.1080/13549839.2021.1904855>.

Jaeger, A.B. (2018) 'Forging Hegemony: How Recycling Became a Popular but Inadequate Response to Accumulating Waste', *Social problems* (Berkeley, Calif.), 65(3), pp. 395–415. Available at: <https://doi.org/10.1093/socpro/spx001>.

Jeffers, A. (2017) *Culture, democracy and the right to make art: the British community arts movement 1968-1986*. Edited by A. Jeffers. New York: Bloomsbury Methuen Drama. Available at: <https://doi.org/10.5040/9781474258395>.

Johnson, I., 2010. "Solarpunk" & the pedagogical value of utopia. *Education*, 2010.

Johnson Jorgensen, J. et al. (2020) 'The Reciprocal Involvement of Family Business Owners and Communities in Business Success', *Sustainability* (Basel, Switzerland), 12(10), p. 4048–. Available at: <https://doi.org/10.3390/su12104048>.

Jordan, C. (2008). *Turning powerful stats into art*. [online] www.ted.com. Available at: https://www.ted.com/talks/chris_jordan_turning_powerful_stats_into_art?utm_campaign=tedsread&utm_medium=referral&utm_source=tedcomshare [Accessed 12 Dec. 2022].

Jucker, J.-L., Barrett, J.L. and Wlodarski, R. (2014) "'I Just Don't Get it': Perceived Artists' Intentions Affect Art Evaluations', *Empirical studies of the arts*, 32(2), pp. 149–182. Available at: <https://doi.org/10.2190/EM.32.2.c>.

Kemple S. (2010). *The Cincinnati Time Store As An Historical Precedent For Societal Change | PDF | Individualism | Social Ideologies*. [online] Available at: <https://www.scribd.com/document/32919811/The-Cincinnati-Time-Store-As-An-Historical-Precedent-For-Societal-Change#> [Accessed 21 Dec. 2022].

King, S. et al. (2020) 'Industrial symbiosis in Australia: The social relations of making contact in a matchmaking marketplace for SMEs', *Journal of cleaner production*, 270, p. 122146–. Available at: <https://doi.org/10.1016/j.jclepro.2020.122146>.

Kirchherr, J., Reike, D. and Hekkert, M. (2017) 'Conceptualizing the circular economy: An analysis of 114 definitions', *Resources, conservation and recycling*, 127, pp. 221–232. Available at: <https://doi.org/10.1016/j.resconrec.2017.09.005>.

Koldobskaya N. A. (2023) 'The role of local initiatives and social networks in solving the problem of waste disposal in the cities of Apatity and Kirovsk, Murmansk region: the experience of participant observation', *Цифровая социология*, 5(4), pp. 67–77. Available at: <https://doi.org/10.26425/2658-347X-2022-5-4-67-77>.

Krasulja, N., Radojević, I. and Janjušić, D., 2016, October. Holacracy-the new management system. In *Proceedings of the International Scientific Conference, Njs, Serbia* (Vol. 13).

Kreczmańska-Gigol, K. and Gigol, T. (2022) 'The Impact of Consumers' Green Skepticism on the Purchase of Energy-Efficient and Environmentally Friendly Products', *Energies* (Basel), 15(6), p. 2077–. Available at: <https://doi.org/10.3390/en15062077>.

KURAN, E., 2013. Leader as storyteller. *Industrial and Commercial Training*, **45**(2), pp. 119-122.

Laville, S. (2021). *UK plastics sent for recycling in Turkey dumped and burned, Greenpeace finds*. [online] the Guardian. Available at: <https://www.theguardian.com/environment/2021/may/17/uk-plastics-sent-for-recycling-in-turkey-dumped-and-burned-greenpeace-finds>.

Lawton, P.H. (2019) 'At the Crossroads of Intersecting Ideologies: Community-Based Art Education, Community Engagement, and Social Practice Art', *Studies in art education*, 60(3), pp. 203–218. Available at: <https://doi.org/10.1080/00393541.2019.1639486>.

Leavey, S.T. (2021). Review of *Art as Revolt: Thinking Politics Through Immanent Aesthetics*, edited by David Fancy and Hans Skott-Myhre (McGill-Queen's University Press). *Lateral*, 10(1). doi:10.25158/l10.1.23.

Léger, M.J. (2016) 'Review: Seeing Power: Art and Activism in the 21st Century, by Nato Thompson', *Afterimage*, 43(4), pp. 40–41. Available at: <https://doi.org/10.1525/aft.2016.43.4.40>.

Levy, M. and Powell, P. (2005) *Strategies for growth in SMEs the role of information and information systems*. Amsterdam; Elsevier Butterworth-Heinemann.

Lotz, A.D. (2007) *The television will be revolutionized*. New York: New York University Press.

LOWE, S.S. (2000) 'Creating Community: Art for Community Development', *Journal of contemporary ethnography*, 29(3), pp. 357–386. Available at: <https://doi.org/10.1177/089124100129023945>.

Lukas, P. (1998) 'Creativity glut cripples admen', *Fortune*, 137(11), p. 46–.

Luke, T. W. (1996). [Review of *But Is It Art? The Spirit of Art as Activism.*; *Culture in Action: A Public Art Program of Sculpture Chicago.*, by N. Felshin, M. J. Jacob, M. Brenson, & E. M. Olson]. *Contemporary Sociology*, 25(5), 681–683. <https://doi.org/10.2307/2077595>

Lybæk, R., Christensen, T.B. and Thomsen, T.P. (2021) 'Enhancing policies for deployment of Industrial symbiosis – What are the obstacles, drivers and future way forward?', *Journal of cleaner production*, 280, p. 124351–. Available at: <https://doi.org/10.1016/j.jclepro.2020.124351>.

Małkiewicz, Z., 2018. Blurred affiliations. *Spectra of Transformation: Arts Education Research and Cultural Dynamics*, p.95.

Martin, B.D. and Schwab, E., 2012. Symbiosis: "Living together" in chaos. *Studies in the History of Biology*, 4(4), pp.7-25.

McLaughlin, B. (2020) 'PROPAGANDA ART IN THE 21ST CENTURY', *Canadian Art*. *Canadian Art*, pp. 101–101.

Mitchell W.J.T. and Tania Bruguera (2016) 'How to Make Art with a Jackhammer: A Conversation with Tania Bruguera', *Afterall*, 42, pp. 48–59.

- Monno, V. and Khakee, A. (2012) 'Tokenism or Political Activism? Some Reflections on Participatory Planning', *International planning studies*, 17(1), pp. 85–101. Available at: <https://doi.org/10.1080/13563475.2011.638181>.
- musicMagpie. (n.d.). *Mount Recyclemore | What is Mount Recyclemore?* [online] Available at: <https://www.musicmagpie.co.uk/mountrecyclemore/> [Accessed 10 Jan. 2023].
- Myers, M.. (2017) 'Kennedy, Mark. Shapeholders: business success in the age of activism', *CHOICE: Current Reviews for Academic Libraries*. American Library Association CHOICE, p. 489–.
- myrecyclingwales.org.uk. (n.d.). *Local Authority Material | My Recycling Wales*. [online] Available at: <https://myrecyclingwales.org.uk/local-authorities/material/4814/36?finyear=2021> [Accessed 19 Nov. 2022].
- myrecyclingwales.org.uk. (n.d.). *Ceredigion's recycling data | My Recycling Wales*. [online] Available at: https://myrecyclingwales.org.uk/local_authorities/ceredigion [Accessed 18 Feb. 2023].
- Neves, A., Godina, R., G. Azevedo, S., Pimentel, C. and C.O. Matias, J. (2019). The Potential of Industrial Symbiosis: Case Analysis and Main Drivers and Barriers to Its Implementation. *Sustainability*, 11(24), p.7095. doi:10.3390/su11247095.
- Nikolić, M. and Skinner, S. (2019) 'Community', *Philosophy today* (Celina), 63(4), pp. 887–901. Available at: <https://doi.org/10.5840/philtoday202014299>.
- Nkrumah, B. (2021) 'Beyond Tokenism: The “Born Frees” and Climate Change in South Africa', *International journal of ecology*, 2021, pp. 1–10. Available at: <https://doi.org/10.1155/2021/8831677>.
- Nossel, S. (2016) 'Introduction: On “Artivism,” or Art's Utility in Activism', *Social research*, 83(1), pp. 103–105. Available at: <https://doi.org/10.1353/sor.2016.0023>.
- Oduro, S. (2019) 'Examining open innovation practices in low-tech SMEs: insights from an emerging market', *Journal of Science and Technology Policy Management*, 10(3), pp. 509–532. Available at: <https://doi.org/10.1108/JSTPM-03-2019-0036>.
- Oke, A., Burke, G. and Myers, A. (2007) 'Innovation types and performance in growing UK SMEs', *International journal of operations & production management*, 27(7), pp. 735–753. Available at: <https://doi.org/10.1108/01443570710756974>.
- ONS (2022). *Population and household estimates, Wales - Office for National Statistics*. [online] Available at: <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/populationandhouseholdestimateswales/census2021#local-authority-populations-in-wales>.
- PARASCHOS, M., 1998. Total Propaganda. *Journalism and Mass Communication Quarterly*, **75**(1), pp. 227-229.
- Pater, L.R. and Cristea, S.L. (2016). Systemic Definitions of Sustainability, Durability and Longevity. *Procedia - Social and Behavioral Sciences*, 221, pp.362–371. doi:<https://doi.org/10.1016/j.sbspro.2016.05.126>.
- Pollock, V.L. and Sharp, J. (2012) 'Real Participation or the Tyranny of Participatory Practice? Public Art and Community Involvement in the Regeneration of the Raploch, Scotland', *Urban studies* (Edinburgh, Scotland), 49(14), pp. 3063–3079. Available at: <https://doi.org/10.1177/0042098012439112>.
- Rajak, S. et al. (2021) 'Multi-objective mixed-integer linear optimization model for sustainable closed-loop supply chain network: a case study on remanufacturing steering column', *Environment, development and sustainability* [Preprint]. Available at: <https://doi.org/10.1007/s10668-021-01713-5>.

- Rapid Transition Alliance (2019). *Transition Towns – the quiet, networked revolution*. [online] Available at: <https://www.rapidtransition.org/stories/transition-towns-the-quiet-networked-revolution/>.
- Reina-Rozo, J. D. (2021). Art, Energy and Technology: the Solarpunk Movement. *International Journal of Engineering, Social Justice, and Peace*, 8(1), 47–60. <https://doi.org/10.24908/ijesjp.v8i1.14292>
- Rincón-Moreno, J., Ormazábal, M., Álvarez, M.J., & Jaca, C. (2020). Shortcomings of Transforming a Local Circular Economy System through Industrial Symbiosis: A Case Study in Spanish SMEs. *Sustainability*.
- Roberts, D. (2017) 'Conclusion', in *The Total Work of Art in European Modernism*. Ithaca, NY: Cornell University Press, pp. 255–266. Available at: <https://doi.org/10.7591/9780801460975-006>.
- Rogers, P. (2017). *Using logic models and theories of change better in evaluation - Blog post on BetterEvaluation*. [online] Available at: <https://www.betterevaluation.org/blog/using-logic-models-theories-change-better-evaluation> [Accessed 19 Feb. 2023].
- Romsland, G.I., Milosavljevic, K.L. and Andreassen, T.A. (2019) 'Facilitating non-tokenistic user involvement in research', *Research involvement and engagement*, 5(1), pp. 18–18. Available at: <https://doi.org/10.1186/s40900-019-0153-3>.
- Rugel, E.J. et al. (2019) 'Exposure to natural space, sense of community belonging, and adverse mental health outcomes across an urban region', *Environmental research*, 171, pp. 365–377. Available at: <https://doi.org/10.1016/j.envres.2019.01.034>.
- Rush Joe (n.d.). *MOUNT RECYCLEMORE*. [online] Available at: <https://www.joerush.com/doghouse> [Accessed 9 Jan. 2023].
- Sancho P., Gomes R. and Pernencar C. (2021) 'Involving or not the beneficiaries role players on social initiative games', *Discern*, 2(2).
- SAYAKA GANZ. (n.d.). *Reclaimed Plastic Sculptures*. [online] Available at: <https://sayakaganz.com/plastics>.
- Schlemmer, R.H., Carpenter, B.S. and Hitchcock, E. (2017) 'Socially Engaged Art Education: Practices, Processes, and Possibilities', *Art education (Reston)*, 70(4), pp. 56–59. Available at: <https://doi.org/10.1080/00043125.2017.1317564>.
- Schult HA (n.d.). *HA Schult, Art is Life | Action | Trash*. [online] Available at: <https://www.haschult.de/action/trashpeople#content>.
- Scott, E.E. and Swenson, K.J. (2015) *Critical Landscapes: Art, Space, Politics*. Edited by E.E. Scott and K.J. Swenson. Berkeley, CA: University of California Press,. Available at: <https://doi.org/10.1525/9780520961319>.
- SCOTT-PHILLIPS, T., 2015. WHAT IS ART? A PRAGMATIC PERSPECTIVE. *Think*, 14(40), pp. 87-91.
- Scotto Di Carlo, G. (2015) 'Pathos as a Communicative Strategy for Online Knowledge Dissemination: The Case of TED Talks', *3L, Language, Linguistics, Literature*, 21(1), pp. 23–34. Available at: <https://doi.org/10.17576/3L-2015-2101-03>.
- Šebjanič, R. (2022). Aquatocene / Subaquatic quest for serenity III Aquatocene / V iskanju podvodne tišine | Robertina Šebjanič. [online] Available at: <https://robertina.net/aquatocene/>.
- Sellitto, M.A. et al. (2021) 'Barriers, drivers, and relationships in industrial symbiosis of a network of Brazilian manufacturing companies', *Sustainable production and consumption*, 26, pp. 443–454. Available at: <https://doi.org/10.1016/j.spc.2020.09.016>.

- Sharma, V. et al. (2014) 'Supporting local climate adaptation planning and implementation through local governance and decentralised finance provision', *Development in practice*, 24(4), pp. 579–590. Available at: <https://doi.org/10.1080/09614524.2014.907240>.
- Sholette, G., & Lippard, L. R. (2017). *Dark Matter: Activist Art and the Counter-Public Sphere*. In K. Charnley (Ed.), *Delirium and Resistance: Activist Art and the Crisis of Capitalism* (pp. 184–202). Pluto Press. <https://doi.org/10.2307/j.ctt1n7qkm9.19>
- Smith, M. (2007) *The total work of art from Bayreuth to cyberspace*. New York;: Routledge.
- Stanley, V. (2020) 'Commentary: Patagonia and the Business of Activism', *Journal of public policy & marketing*, 39(4), pp. 393–395. Available at: <https://doi.org/10.1177/0743915620948864>.
- STEINHOFF, A. J. (2016). Richard Wagner, Parsifal, and the Pursuit of Gesamtkunstwerk. In A. J. STEINHOFF, D. IMHOOF, & M. E. MENNINGER (Eds.), *The Total Work of Art: Foundations, Articulations, Inspirations* (1st ed., Vol. 12, pp. 56–78). Berghahn Books. <https://doi.org/10.2307/j.ctvr6955g.9>
- Steinkopf-Frank H. (2017). *Solarpunk Is Not About Pretty Aesthetics. It's About the End of Capitalism*. www.vice.com [online] Available at: <https://www.vice.com/en/article/wx5aym/solarpunk-is-not-about-pretty-aesthetics-its-about-the-end-of-capitalism>.
- STERN, P.C., 2012. Psychology: Fear and hope in climate messages. *Nature Climate Change*, 2(8), pp. 572-573.
- Stockholm Environmental Institute (2015). *Ecological and Carbon Footprints of Wales Update to 2011* Stockholm Environment Institute and GHD. [online] Available at: <https://gov.wales/sites/default/files/publications/2019-04/ecological-and-carbon-footprint-of-wales-report.pdf>.
- Tate (2017). *Environmental art – Art Term* | Tate. [online] Tate. Available at: <https://www.tate.org.uk/art/art-terms/e/environmental-art>.
- Thomas, D.F. et al. (2009) 'Understanding the link between business organizations and construction of community sense of place: the place based network model', *Community development* (Columbus, Ohio), 39(3), pp. 33–44.
- Trott, P. and Simms, C. (2017) 'An examination of product innovation in low- and medium-technology industries: Cases from the UK packaged food sector', *Research policy*, 46(3), pp. 605–623. Available at: <https://doi.org/10.1016/j.respol.2017.01.007>.
- Usai, A. et al. (2018) 'Do entrepreneurial knowledge and innovative attitude overcome “imperfections” in the innovation process? Insights from SMEs in the UK and Italy', *Journal of knowledge management*, 22(8), pp. 1637–1654. Available at: <https://doi.org/10.1108/JKM-01-2018-0035>.
- van Capelleveen, G. et al. (2018) 'The influence of knowledge in the design of a recommender system to facilitate industrial symbiosis markets', *Environmental modelling & software: with environment data news*, 110, pp. 139–152. Available at: <https://doi.org/10.1016/j.envsoft.2018.04.004>.
- Velenturf, A.P.M. and Jensen, P.D. (2016) 'Promoting Industrial Symbiosis: Using the Concept of Proximity to Explore Social Network Development', *Journal of industrial ecology*, 20(4), pp. 700–709. Available at: <https://doi.org/10.1111/jiec.12315>.
- Verguts, V., Dessein, J., Dewulf, A., Lauwers, L., Werkman, R. and Termeer, C.J.A.M. (2016). Industrial symbiosis as sustainable development strategy: adding a change perspective. *International Journal of Sustainable Development*, 19(1), p.15. doi:10.1504/ijdsd.2016.073650.
- Vetter, T.R., 2017. Descriptive statistics: reporting the answers to the 5 basic questions of who, what, why, when, where, and a sixth, so what?. *Anesthesia & Analgesia*, 125(5), pp.1797-1802.

- Welsh Assembly Government (2009) One Wales: One Planet The Sustainable Development Scheme of the Welsh Assembly Government. [online] Available at: <https://www.bridgend.gov.uk/media/1505/wd32.pdf>.
- Welsh Government (2021). Beyond Recycling; A strategy to make the circular economy in Wales a reality. [online] Available at: <https://gov.wales/sites/default/files/publications/2021-03/beyond-recycling-strategy-document.pdf>.
- Welsh Government (2021). *Longitudinal small business survey: 2019*. [online] Available at: <https://gov.wales/longitudinal-small-business-survey-2019.html>.
- Westoby, R. et al. (2020) 'From community-based to locally led adaptation: Evidence from Vanuatu', *Ambio*, 49(9), pp. 1466–1473. Available at: <https://doi.org/10.1007/s13280-019-01294-8>.
- What Design Can Do. (2021). *Why waste is a socio-political issue*. [online] Available at: <https://www.whatdesigncando.com/stories/why-waste-is-social/>.
- Wong, S.K.S. (2019) 'Applying an ethological perspective of art to the community arts and socially engaged arts', *Journal of visual art practice*, 18(3), pp. 205–220. Available at: <https://doi.org/10.1080/14702029.2019.1613614>.
- Wray D. D. (2023). 'You should gaze at your bins in horror': the massive crime scandal behind the UK's rubbish. *The Guardian* [online] Available at: <https://www.theguardian.com/tv-and-radio/2023/jan/23/buried-bbc-podcast-exposing-waste-rubbish-crime-scandal> [Accessed 23 Jan. 2023].
- Ziniel, C. and Bradley, T. (2018) 'Greening British Businesses: SMEs and the New Wave of the Environmental Social Movement', *International journal of social quality*, 8(2), pp. 1–26. Available at: <https://doi.org/10.3167/IJSQ.2018.080202>.

APPENDIX

See table below.

List of curated projects listed in the archive of the online platform.

Table entry to inform the characteristics of each projects in relation with the research (blue cells are projects using waste as a valuable resource)

Town size:	Location parameter:	User parameter:	Action parameter:
1 - <10,000 inhabitants	1 - Neighbourhood	1 - Restricted access	1 - Information
2 - >10,000 inhabitants	2 - One town	2 - One community	2 - Data
3 - >100,000 inhabitants	3 - National	3 - Multiple communities	3 - Tool / method
4 - >1,000,000 inhabitants	4 - International	4 - Anyone	4 - Action

Curated Projects										
Number	Name	Category	Longevity	Town size	Maintenance	Users	Goals	Location parameter	User parameter	Action parameter
001	Nouveaux Commanditaires	Social	Ongoing	Not specified	Foundation	Groups	Facilitate commissioning artists	4	4	3
002	Aloha	Politics & Economy & Social	5	Not specified	Initiators	Artists and writers	Open magazine	3	2	1
003	Herramienta / Supergas	Scientific & Economy & Environment	Ongoing	Not specified	NGOs and University	Engineers	Biogas energy networks	4	4	4
004	TOOLS/SUPERCHANNEL	Social	7	Not specified	Museums	Citizens	To make available TV studios	4	4	1
006	Atelier Populaire	Politics & Social	1	Not specified	Initiator and art school	Strikers	To protest	3	2	1
007	Crossroads Community (The Farm)	Urban development & Environment & Social	13	3	Trust	Local community	Create a culture-ecology park	2	4	1
008	Portable Parks I-III	Environment & Social	Ongoing	3	Initiator	Anyone	Temporary green space in urban settings	1	4	4
009	Tucumán Arde	Politics & Social	1	4	Initiators	Local community	To create counter information to oppose dictatorship	2	4	1
010	Homeless Vehicle	Economy & Social	2	4	Initiator	Homeless	Self sustaining homeless people to be considered as part of society	2	2	4
011	Revival Field	Scientific & Economy & Environment	Ongoing	Not specified	Initiator	Scientists	Low tech decontamination of soil	4	2	4
013	Recetas Urbanas	Urban development & Economy & Social	Ongoing	Internet	Initiator	Activists	Use public spaces differently legally	2	3	3
014	The Cook, the Farmer, his Wife and their Neighbour	Economy & Social	1	3	Foundation and museum	Residents	Different communities come to a communal kitchen and garden to create a community	1	3	4
016	ParaSITE	Economy & Social	4	3	Gallery	Homeless	Using ventilation systems to heat shelter for homeless	4	2	4
017	Mejor Vida Corp (Better Live Corporation)	Politics & Economy & Social	Ongoing	2	Initiators and volunteers	Citizens	Reversing the notions of commodification and profit	2	4	4
018	Project Row Houses	Pedagogical & Economy & Social	Ongoing	4	Foundations	Local community	Stop gentrification	1	3	4
020	Vigilia / Night Watch	Urban development & Social	2	Not specified	Institutions	Watchmen	Paradoxically useful act: controlling activities like the artist undertook	1	1	4

Number	Name	Category	Longevity	Town size	Maintenance	Users	Goals	Location parameter	User parameter	Action parameter
021	Ghana ThinkTank	Social	Ongoing	Not specified	Participants	Citizens	Find solutions in developing countries to solve developed countries problems	4	1	4
022	Rifiuto Con Affetto	Pedagogical & Economy & Environment & Social	Ongoing	3	Municipality	Artists	To reduce quantity of waste being discarded	2	4	4
023	Superquadra casa-armário	Urban development & Economy & Social	1	4	Museum	Homeless	Private space for homeless	2	1	4
024	X.C. Préfet de ... Plaidoirie pour une jurisprudence	Politics & Social	2	Not specified	Initiators	Migrants	Use IP to have the right to stay in EU	3	2	4
025	Access a lo denegado	Pedagogical & Politics & Social	1	Not specified	Initiator	37 residents	Internet access	2	1	2
026	Aplicación Legal desplazada #1: Reserva Fraccionaria	Politics & Economy & Social	2	Internet	Artist	Citizens	Conferences to share strategies about how to expropriate money from banks	3	4	3
027	Tamms Year Ten	Politics & Social	5	1	Collective	Prisoners	End the use of long term isolation	1	1	4
029	(P)LOT: Proposition I	Urban development & Economy	1	Not specified	Initiator	Citizens	To question the public spaces dedicated to cars	4	4	4
032	Useful Art works	Urban development & Social	1	4	Initiator	Artists	Art as a modest contribution to improvement of everyday lives	2	1	4
037	Cesme	Urban development & Economy & Social	1	3	Biennale	Residents and artists	Distribution of drinking water	1	3	4
042	ID: a criminal project	Politics & Economy & Social	Ongoing	4	Gallery	Anonymous	Transform the art route to conceal crime	4	4	4
043	The centre of urban pedagogy (CUP)	Urban development & Pedagogical & Politics	Ongoing	4	Public and private funds	Educators	To improve civic engagement	2	4	1
044	El Sistema	Pedagogical & Politics & Economy & Social	Ongoing	4	Colleges and government	Kids at risk of social exclusion	Free access to classical music education	3	2	1
046	Hudson 2+4	Urban development & Pedagogical & Social	1	2	Foundations	Residents	Redeveloped neighbourhood without alienating poor population	1	3	4
048	Transborder Immigrant Tool	Scientific & Politics & Social	Ongoing	Not specified	Institute and University	Migrants	Guide immigrants	2	1	2
049	Dry Toilet	Urban development & Economy & Environment & Social	Ongoing	4	Foundation and ministry	Local community	To give infrastructure with no running water	1	4	4
052	Rainwater Harvesting	Scientific & Environment	Ongoing	3	Foundation and town council	Small farmers	To save water	1	2	4
055	t Hool	Urban development & Social	1	3	MNE	Residents	To build a whole neighbourhood to match the future residents' needs	1	2	4

Number	Name	Category	Longevity	Town size	Maintenance	Users	Goals	Location parameter	User parameter	Action parameter
056	Drop City	Environment & Social	8	1	Self sustained	Residents	DIY architecture using waste	2	2	4
057	Inflatables	Urban development	10	Not specified	Initiator	Visitors	Cheap and easy to transport architecture	3	1	1
058	New Babylon	Urban development	18	Not specified	Initiator and artists	Residents	Anticapitalist utopian city	2	2	4
062	Dorchester Project	Urban development & Pedagogical & Social	Ongoing	4	Initiator and residents	Residents	To provide affordable housing	1	4	4
066	ECObox	Urban development & Environment & Social	5	4	Initiator	Residents	To transform urban misused spaces into gardens	1	4	4
068	Hygiene System	Economy	1	Internet	Initiator	Anyone	Accessible mobile hygiene unit	4	4	3
070	Hucha de los deseos	Urban development & Social	2	4	Council	Residents	Empower people with collaborative projects	1	4	4
071	Palas por pistolas	Politics & Economy & Environment & Social	Ongoing	4	Organisations	Residents	Collect weapons to be melted into shovels and reduce crime	2	4	4
073	The Mending Project	Economy & Social	1	Not specified	Organisations	Visitors	Relationship between the artist and strangers and free mended clothes	1	1	4
075	Inteligencias colectivas	Pedagogical & Economy & Environment & Social	Ongoing	Internet	Initiator	Anyone	To promote construction methods from around the world	4	4	1
076	Dynamo Secession	Scientific & Environment	1	Not specified	Initiator	Visitors	To generate electricity and a connection with museum guards	2	1	4
077	Haircuts by Children	Pedagogical & Economy & Social	2	Not specified	Initiator	Children	To view children as citizens	4	2	4
079	Cybermohalla	Scientific & Pedagogical & Social	Ongoing	4	Centre	Children and women	Access to computer technology to create better living conditions	1	2	1
083	NO+	Politics	Ongoing	4	Collective	Citizens	Political resistance	3	4	3
086	Free house	Pedagogical & Economy & Social	Ongoing	3	Institutions	Residents	Skill based neighbourhood cooperative	1	4	1
088	Prototype for Self Employed Economic Unit (Street shop box)	Economy & Environment & Social	1	2	Biennale	Unemployed women	Use of land and sale of price from the land	2	2	4
089	Light Therapy	Scientific & Economy & Social	1	4	Museums	Visitors	Light treatment accessible	4	1	4
090	Home Design Service	Urban development & Pedagogical & Economy & Social	1	3	Initiator	Residents	To give access to information on home design	1	4	1
092	Non Stop Video Club	Pedagogical & Politics & Economy & Social	1	3	Gallery	Members	Vidéoclub for foreign films	2	1	1

Number	Name	Category	Longevity	Town size	Maintenance	Users	Goals	Location parameter	User parameter	Action parameter
100	ExRotaprint	Urban development & Politics & Economy & Social	Ongoing	4	Cooperative	Local community	Prevent real estate speculation	1	4	4
101	Guaraná Power	Politics & Economy & Social	Ongoing	2	Foundation and museums	Farmers	Using art facilities as counter capitalism	2	2	4
103	El Puente	Pedagogical & Politics & Economy & Social	Ongoing	4	Foundations	Residents	To stop gang violence	1	2	4
108	Turning a public toilet into a spa	Economy & Social	1	4	Charity	Homeless and residents	Adding elements to existing infrastructure illegally to offer new functions	1	4	4
111	Maleteros	Economy & Social	1	Not specified	Organisation	Informal economy workers	To improve informal businesses	2	2	3
112	Mad Housers		Ongoing	4	Donations	Homeless and low income families	Construct shelter and develop skills	2	3	4
114	Instant City	Urban development & Economy & Social	1	3	Organisation	Participants	To create a city temporarily	2	1	4
115	Home baked	Urban development & Economy & Social	Ongoing	2	Cooperative	Residents	Cooperative bakery and collective community ownership	1	1	4
116	Free-Range Grain	Scientific & Pedagogical & Politics	2	Not specified	Gallery	Public	To make science accessible and concrete	4	4	2
118	Lectures and other essays	Scientific & Pedagogical & Politics & Economy & Social	40	Not specified	Initiator	Readers	To show connections between nature, art and society	3	3	1
121	Temescal Amity Works	Pedagogical & Economy & Social	3	3	Initiator	Local community	Resource for distribution of fruits	1	4	4
124	Green House	Pedagogical & Politics & Environment & Social	Ongoing	3	Museum	Pupils	Bringing communities together	1	3	4
126	The Public School	Pedagogical & Economy & Social	Ongoing	Internet	Institutes	Pupils	Free international school with no copyright restrictions	4	4	1
128	Yomango	Politics & Economy	Ongoing	4	Initiator	Activists	Ethical shoplifting, getting ideas, labour back	4	4	4
129	Trade School	Pedagogical & Economy & Social	10	Not specified	Volunteers	Anyone	Barter network of knowledge	4	4	1
133	Residuos Urbanos Sólidos (RUS)	Urban development & Pedagogical & Economy & Environment	Ongoing	3	Initiator and institutions	Anyone	Transform local waste into useful installations	1	4	4
134	Museo de la Calle	Economy & Social	Ongoing	4	Initiator	Residents	Swap items	4	4	4
138	pad.ma	Pedagogical & Economy & Social	Ongoing	4	Foundations	Anyone	Archive video documents	3	4	2

Number	Name	Category	Longevity	Town size	Maintenance	Users	Goals	Location parameter	User parameter	Action parameter
140	Medical Care for Homeless People	Politics & Economy & Social	Ongoing	4	Council and sponsorship	Homeless	Free healthcare in mobile van	2	2	4
147	Kein Mensche Ist Illegal	Politics	Ongoing	Internet	Organisations	Migrants and refugees	Free movement	4	3	4
156	Cultura Ciudadana	Pedagogical & Politics & Economy & Social	5	4	Council	Residents	To make women safer in the city	2	2	4
157	Experimental Station		Ongoing	4	Grants and donations	Residents	Exchange spaces for cultural events	1	2	4
158	Flood	Scientific & Economy & Social	3	4	Organisation	Social services	Local HIV/AIDS healthcare originated from a hydroponic garden	3	2	4
159	Park Fiction	Urban development & Politics & Social	Ongoing	4	Institutions	Residents	City as a product of residents every day uses	1	4	4
161	The Rolling Jubilee	Politics & Economy & Social	Ongoing	Not specified	Donations	Citizens	New alternate economy	3	2	4
163	The Patriot Library	Pedagogical & Politics	1	Internet	Initiators	Citizens	Access to censored material	4	4	1
164	Love apples	Urban development & Economy & Environment	1	4	Initiator	Citizens	Consider new use of disused urban spaces	2	4	4
167	The Open Public Library	Pedagogical & Economy	2	3	Initiators	Residents	Share resources and collective responsibility	2	4	1
171	Cardboard Citizens	Pedagogical & Economy & Social	Ongoing	Not specified	Charity	Homeless and displaced people	Theatre as catalyst for change and support	3	3	3
174	Street-Level Youth Media (Tele-Vecindario)	Pedagogical & Social	Ongoing	4	Centre	Young people	Using visual arts to address issues	1	3	1
177	Midnight University	Pedagogical & Politics	7	Internet	Initiator	Students	Educational tool and forum to discuss social problems	3	3	1
180	Frontier Vest	Social	1	Not specified	Galleries and university	Religious refugees	Garment as individual belief expression	4	3	4
184	Stalker/Osservatorio Nomade	Urban development & Pedagogical	Ongoing	Not specified	Collective	All minorities	Transform the urban space using interactive methods	2	3	3
185	Untitled (free/still)	Economy & Social	19	4	Gallery	Visitors	To blur frontiers between art and audience	1	4	4
187	Shelter for drug addicted women	Politics & Economy & Social	6	3	Council	Prostitutes	A place to sleep during the day and advice around common issues	2	2	4
192	Free International University (FIU) for Creativity and Interdisciplinary Research	Pedagogical & Politics & Economy	16	3	Students	Students	University for all to transform society	4	4	3
197	Women on Waves	Politics & Social	Ongoing	Not specified	Private funding	Women	To prevent unsafe abortions and work around repressive laws	4	2	4
198	Mobile Academy: black market for Useful Knowledge and Non-Knowledge	Pedagogical & Politics & Economy	Ongoing	Not specified	Initiator	Participants	To access knowledge from experts	4	4	1
199	State in Time or NSK State	Politics	Ongoing	Not specified	Initiator	NSK passport holders	Transcend nationalities and create utopian national state with no land	4	4	2
201	NAC Foundation (New Ateliers Charolais)		Ongoing	3	Council	Artists	Trust and responsibility for freedom	1	1	4

Number	Name	Category	Longevity	Town size	Maintenance	Users	Goals	Location parameter	User parameter	Action parameter
202	New Walk Ways in New Bell	Urban development & Economy & Social	Ongoing	4	Organisation	Residents	To give residents the power to improve their living conditions while covering sewers	1	4	4
204	No de desarrollo cultural #1 "El Morro"	Economy & Environment & Social	Ongoing	4	Initiator and foundation	Local community	Decentralised cultural activities in temporary cheap structures	1	2	4
212	Green Guerillas	Urban development & Politics & Environment	Ongoing	4	Volunteers	Gardeners	Community garden	1	4	4
213	Face Your World	Urban development & Pedagogical & Social	6	3	Council	Young people	Opportunity for young people to change their urban environment	1	2	4
215	Memetro	Politics & Economy & Social	Ongoing	4	Initiator	Subway users	Warn passengers, including people with TGM, of tickets inspection	2	4	3
216	Ticketing Jessica Lappin	Politics & Economy & Social	1	4	Centre	Street vendors	New legislation dropped before being heard	2	2	4
217	I Make Maintenance Art One Hour Every Day		1	4	Museum and council	Citizens	To question the definitions of work and art, while addressing issues of urban waste	2	1	1
218	Four actions of Maintenance Art	Pedagogical & Social	1	4	Museum	Artists	To value maintenance jobs	2	1	1
219	Intervention #1	Politics & Economy & Social	1	Not specified	Cooperative	Evicted people	Reinstate social housing bought by banks as bailout	3	2	4
220	Experiments in Art and Technology (E.A.T)	Scientific & Pedagogical & Economy	55	Not specified	Foundation	Artists	Facilitate collaborations between artists and engineers using new technologies	4	3	3
221	Torovestimenta	Politics & Social	14	Not specified	Initiator	Cross border people	Trousers with survival kits when crossing border (USA-Mexico) in both directions	3	3	3
222	9 familias, Arquitectura de Emergencia	Urban development & Social	3	4	Initiator	Residents	Co-design new homes	1	2	4
225	Coffee Table Skirt	Urban development	1	Not specified	Initiator	Victims	To interrogate the impact on wartime when people are forced to flee suddenly	4	1	1
226	Chicago Compost Shelter	Urban Development & Economy & Social	1	4	Initiator	Homeless	Heated shelter with no risk of fire	2	2	4
228	Refugee wear	Economy & Social	15	4	Initiator	Homeless, refugees and victims	To wear a portable shelter with emergency kits	4	3	4
229	Design for the Alien Within	Politics & Social	Ongoing	Internet	Initiator and galleries	Anyone	Promote resistance to migration legislations	4	4	3
230	In Situ Sanctuary	Politics & Social	1	Not specified	Initiator	Migrants	To hide people from immigration officers	2	2	3
231	The Art of Drinking Beer with Friends is the Highest Form of Art	Economy & Social	Ongoing	3	Initiator	Participants	Events to drink beer	4	1	4
232	Free for all	Economy & Social	1	Not specified	University	Visitors	Point out waste American culture creates	2	1	1
233	Handallaye Project	Economy & Social	Ongoing	1	Initiator	Local community	Craft workshops to give residents skills	2	4	1
234	Joanne 4 Jackie	Economy & Social	Ongoing	Internet	Initiator	Women filmmakers	To share and distribute underrepresented filmmakers	4	2	2

Number	Name	Category	Longevity	Town size	Maintenance	Users	Goals	Location parameter	User parameter	Action parameter
236	Intervention #2	Urban development & Politics & Economy & Social	1	2	Activists	Evicted people	Reclaim social housing	2	2	4
237	Humanitarian Aid	Politics & Economy & Social	5	Not specified	Initiator	Single men	Marrying to gain citizenship	4	2	3
239	Offside	Pedagogical & Politics & Social	1	Not specified	Association	Migrants	Allow migrants to apply for residence permit	1	1	4
240	West-Eastern Divan Orchestra	Pedagogical & Politics & Social	Ongoing	Not specified	Foundations	Musicians	To unite populations in conflicts breaking barriers	4	3	3
241	The Silent University	Pedagogical & Politics & Social	Ongoing	4	Organisations	Migrants	Opportunity for migrants to share their skills and knowledge in country of adoption	4	2	1
242	Trampoline House	Pedagogical & Politics & Social	10	3	Foundation and donations	Migrants and refugees	Give migrants an opportunity to be part of community	2	3	1
243	Human Hotel	Economy & Social	Ongoing	3	Initiator and municipality	Activists	Free housing for activists	2	2	2
244	New Day New Standard (now the "Domestic Worker App")	Pedagogical & Politics & Economy & Social	Ongoing	4	Foundation and donors	Nannies	To create better working conditions	2	2	1
247	Please Love Austria	Politics & Social	1	4	Festival	Asylum seekers	To show migration legislation follow a political agenda	1	1	4
248	100% Pubblica	Economy & Environment & Social	2	Not specified	Initiators	Residents	Water as public good and stop plastic consumption	3	4	2
249	Immigrant Labour Issues	Economy & Social	1	Not specified	Initiator	Refugees	Commissions to work around migration legislation	3	2	4
250	Improving Conditions in Deportation Detention	Politics & Social	1	3	Association	Inmates	Improve detention conditions	2	2	4
252	Initiatives for Unemployed People		Ongoing	4	Organisation	Unemployed people	Advice for unemployed people	1	2	1
253	Isuma Productions	Pedagogical & Economy & Social	Ongoing	1	Initiators	Local community and filmmakers	Independent films and culture preservation	2	3	1
254	Language Schools in the Kosovo War	Pedagogical & Economy & Social	4	2	University and organisations	Refugees	To school refugee children	4	2	1
256	Employment of Former Drug Users	Pedagogical & Economy & Social	Ongoing	Not specified	Institute	Ex-drug users	Help people to integrate a workplace	2	1	4
257	Furnishing Social Institutions	Pedagogical & Economy & Social	1	4	Museum and university	Social organisations	Repurposing materials disposed of by cultural institutions	2	1	4
260	Centre for Alternative Technology (CAT)	Urban development & Economy & Environment & Social	Ongoing	1	Donations and sponsorship	Students	To search for sustainable technologies	3	4	1
264	Bionic Sheep	Scientific & Economy	Ongoing	Not specified	Initiator	Shepherds	Open source technology to protect flocks of sheep from canines	3	2	3
265	The Diggers Free Store	Economy & Social	1	3	Initiators	Anyone	Anarchists' space to get free stuff	2	4	4

Number	Name	Category	Longevity	Town size	Maintenance	Users	Goals	Location parameter	User parameter	Action parameter
268	Het Kattegat	Urban development & Social	Ongoing	3	Municipality	Local community	To assemble people in a community centre during their daily activities	1	4	4
269	Coursera	Pedagogical & Economy	Ongoing	Internet	Staff	Anyone	Empower people with education	4	4	1
270	Ubuweb	Pedagogical & Economy	Ongoing	Internet	Initiator and university	Artists	Free online access to hard to find cinema art sounds	4	3	1
271	Copy-right no Copy-right	Economy & Social	Ongoing	Internet	Initiator	Artists	Open multimedia archive	4	4	2
272	Rebiennale	Economy & Environment & Social	Ongoing	3	Collective	Architects	Recycle art exhibition materials for public projects in Venice	2	1	4
274	Questuamatic	Economy & Social	2	2	Initiator	Worshippers and beggars	Give money to beggars away from sacred spaces	2	1	3
275	Cooperative Housekeeping	Urban development & Economy & Social	1	Not specified	Initiator	Women	Free time and earning some money	1	1	4
277	Constructivism - Finishing Machine	Economy & Social	1	4	Factory	Workers	Artists as inventor to increase production	2	1	4
278	Home Improvement Service	Economy & Social	Ongoing	3	Centre	Residents	Improve the conditions of living	1	4	4
280	2.6g 329m/s	Scientific & Social	Ongoing	Not specified	Initiator and laboratory	Citizens	Bulletproof skin for safety and invulnerability	4	4	3
285	Theatre of the Oppressed: Legislative Theatre	Pedagogical & Politics & Social	Ongoing	4	Initiator	Actors and spectators	Proposing new laws using theatre production	2	4	3
296	Proyecto Meteoro	Pedagogical & Economy & Social	1	4	Foundations	Young homeless	Art as tool for social changes	2	2	4
297	Zesde Kolonne-Flipside Art Space	Pedagogical & Politics & Economy & Social	Ongoing	3	Cooperative	Artists	To offer creative spaces to artists for cheap	2	2	4
298	Circuit II	Urban development & Social	Ongoing	2	Organisation	Centre's residents	To give wheelchair users easy access to the dunes	1	1	4
313	Loompanics	Pedagogical & Politics & Economy	Ongoing	Not specified	Museum	Readers	To bypass censorship	2	4	1
317	The Russia - The Land of Opportunity	Politics & Social	Ongoing	Not specified	Initiator	Players	Role board game in the everyday life of migrants	3	4	1
329	Haagse Beek	Urban development & Environment	9	3	Federations	Residents	Not adding just rearranging existing elements in the urban landscape	2	4	4
330	Arte Cidade	Urban development & Politics & Economy & Social	Ongoing	4	Initiator and institutions	Residents	Discuss artistic ideas in mega cities	2	4	1
337	El Cerro	Urban development & Economy & Social	Ongoing	1	Residents	Residents	Buildings' aesthetic as social progress	2	4	4
357	Wasteland	Urban development & Environment & Social	Ongoing	2	Institutions	Local community	To prevent development on wasteland	1	4	4

Number	Name	Category	Longevity	Town size	Maintenance	Users	Goals	Location parameter	User parameter	Action parameter
359	Bioswop	Economy & Social	Ongoing	Internet	Collective	Anyone	Devalue the notion of CV	4	4	2
367	Water Pumps sites (Nalpar)	Urban development & Social	Ongoing	1	Initiator	Women	To provide water safely	1	2	4
370	AA Project	Scientific & Pedagogical & Politics & Economy & Environment & Social	Ongoing	3	Artist	Residents	To recover local knowledge for a comprehensive picture of the area	2	4	2
384	Piazza dell'Artigianato O	Urban development & Environment & Social	Ongoing	1	Initiators and foundation	Local community	Permaculture using industrial waste on unused industrial space	2	4	4
393	Yalangbara	Social	Ongoing	1	Gallery	Aboriginal people	Art as evidence in courts	2	2	3
403	Pavlovsk Experimental Station	Economy & Environment & Social	Ongoing	4	Institute	Scientists	To preserve seeds for the future	3	1	4
404	Ushahidi	Politics & Social	Ongoing	Not specified	Donations	Victims	To visualise emergencies and crowdsource	4	4	2
405	The Garden Project	Pedagogical & Politics & Economy & Environment & Social	Ongoing	3	Government	Former prisoners	To prevent recidivism through environmental projects	2	2	4
406	Koshirakura Landscape Workshop	Urban development & Pedagogical & Economy & Social	Ongoing	1	Initiator and foundations	Residents	Repurposing existing buildings for ageing residents	2	4	4
407	Violence prevention through urban upgrading (VPUU)	Urban development & Economy & Social	Ongoing	4	Council and Development bank	Residents	To reduce violent crimes	1	4	4
408	UMuthiMAYCHE	Urban development & Economy & Social	Ongoing	4	Foundation	Musicians	Community structure built between government houses	1	3	4
409	Kibera Public Space Project	Urban development & Economy & Environment & Social	Ongoing	3	Charity	Residents	Provide a flood defence used as a mean to shelter micro enterprises	2	4	4
419	Urban Space Station	Urban development & Scientific & Economy & Environment & Social	Ongoing	4	University and museum	Initiators and team	Parasite structure on buildings for carbon capture in a closed system	1	1	4
420	The Green Bans	Urban development & Environment & Social	3	4	Foundation and grants	Activists	Protect environment and heritage	4	1	4
425	Fruit Tree Adoptions	Urban development & Environment & Social	Ongoing	4	Initiators	Residents	Adopt a fruit tree to plant and care for in public spaces to create a greener and more cooperative environment	1	4	4
426	Pruitt-Igoe Bee Sanctuary: Living Proposal	Urban development & Environment	Ongoing	3	Organisation	Pupils	Educational space in urban garden from reclaimed land	1	2	1

Number	Name	Category	Longevity	Town size	Maintenance	Users	Goals	Location parameter	User parameter	Action parameter
427	Kesen Transplant	Environment & Social	1	2	Festival	Local community	Grow future of area after disaster	2	4	3
428	Zapatista Tactical Floodnet	Scientific & Pedagogical & Politics & Social	1	Internet	Initiator	Hackers	Protest using IT technologies	4	2	3
431	Child as Audience	Scientific & Pedagogical	3	Not specified	Initiators and Institute	Teenage boys	Hack in Nintendo Gameboy game	4	2	1
432	Peep Under the Elbe	Scientific & Economy & Environment & Social	1	4	Gallery	Residents	Encourage using the canals for recreational activities while monitoring water quality	1	4	2
433	Conflict Kitchen	Politics & Social	Ongoing	3	Initiators and foundations	Customers	To engage public and offer a different perspective from the media about countries	2	4	1
434	Radical Software	Scientific & Politics	5	4	Collective	Artists	Video art as alternative to mass culture	2	1	1
436	Falling Fruit	Economy & Environment	Ongoing	Internet	Initiators	Anyone	Opportunity for foraging and reconnecting with food	4	4	2
440	Problem solving through networking	Urban development & Economy & Social	1	1	Organisation	Residents	Invite experts who share their knowledge to local community	2	4	1
441	Space Sharing	Urban development & Economy	1	4	Gallery	Activists	Give associations a space for their activities	2	2	4
443	A Vacant House for Students	Urban development & Economy & Social	1	4	Council	Students	Free accommodation in exchange for free renovations	1	2	4
447	Mosireen	Pedagogical & Politics & Economy & Social	Ongoing	Not specified	Initiator	Participants	To support citizens media	3	4	3
449	El Matam El Mish Masry	Urban development & Politics & Economy & Environment & Social	1	4	Initiator and team	Residents	Food as a common thing to unite and debate around the table	1	3	3
451	Provo	Politics	2	3	Activists	Activists	Social change	3	3	4
453	indymedia.org	Politics	Ongoing	Internet	Activists	Readers	Alternative independent media	4	4	1
454	Cincinnati Time Store	Politics & Economy & Social	3	3	Initiator	Local community	Value labour instead of money	2	4	4
460	When Platitudes Become Form	Economy & Social	Ongoing	Not specified	Initiator	Displaced people	To regain freedom of speech	3	2	4
464	Bauhaus	Pedagogical & Economy & Social	14	2	Government	Students	Design for mass production	3	1	1
465	The Aphrodite Project	Scientific & Politics & Social	Ongoing	Not specified	Organisations	Prostitutes	Offer protection using technologies	3	2	3
467	100 Tácticas Creativas para la seguridad ciudadana	Pedagogical & Politics & Economy & Social	1	Internet	Government and museum	Initiators	Advise to find concrete solutions to social problems	4	3	2

Number	Name	Category	Longevity	Town size	Maintenance	Users	Goals	Location parameter	User parameter	Action parameter
468	Fallen Fruit - Public Fruit Maps	Urban development & Environment & Social	Ongoing	Internet	Collective	Residents	Wandering and foraging in urban environment	4	4	2
469	X-PO	Pedagogical & Politics & Environment & Social	Ongoing	1	Fundraiser	Farmers and participants	To exchange ideas about rural life	2	4	1
470	Tequiografias	Pedagogical & Social	Ongoing	4	Initiator	Indigenous people	Empower indigenous people while sharing their knowledge	2	2	1
471	www.vivireternamente.org	Social	Ongoing	Internet	Initiator	Social network users	Managing personal information posthumously	4	4	1
472	Honest Shop	Economy & Environment & Social	Ongoing	1	Institute	Local community	Retail outlet for local producers	2	4	4
473	New World Summit	Pedagogical & Politics & Social	Ongoing	Not specified	Institutions and organisations	Political movements	International parliament for fundamental democracy including terrorist organisations	4	3	4
474	Ruilbank	Urban development & Economy & Social	1	3	Initiator	Anyone	Exchange of reading using public benches as addresses	2	4	1
476	A Parasitical Breed of Consumer	Economy & Environment	1	3	Initiator	Participants	To demonstrate that supermarket leftovers are consumable	2	4	4
477	Lonely	Politics & Social	2	2	Publisher	Wanderer	Neutralise the practice of suicide through a guide book while educating about it	2	4	3
479	The Milk Truck	Scientific & Politics & Economy & Social	Ongoing	4	Museum	Breastfeeding mothers	Normalise breastfeeding in public	2	2	1
480	Energia Alternativa para Isla Paulino	Scientific & Pedagogical & Politics & Economy & Environment & Social	Ongoing	3	Local community	Residents	Provide electricity with no pollution risk	2	4	4
481	Kosovo Box	Urban development & Politics & Social	5	2	Schools and galleries	Women	Propose solutions to lack of shelter for women	3	2	1
482	Culture Shop	Pedagogical & Economy & Environment	Ongoing	1	Staff	Visitors	Disseminate yeast-based cultures for low-cost and low-impact food	1	1	4
483	Freiräume Map Berlin	Urban development & Pedagogical & Politics & Economy & Social	Ongoing	4	Initiator	Residents	Internet based map of free spaces to get a chance to connect	2	4	2
485	3D 87 Deutschlandbilder	Urban development & Politics & Social	Ongoing	3	Artist and museum	Migrants	To give anonymous and free medical care and give awareness to passers-by's	3	2	3
486	Mobile Dairy Unit	Scientific & Politics & Economy & Environment & Social	Ongoing	Not specified	Volunteers	Local communities	Mobile unit to teach how to make cheese	3	4	1

Number	Name	Category	Longevity	Town size	Maintenance	Users	Goals	Location parameter	User parameter	Action parameter
487	BeeCare - The Inner City as Nature Reserve for Pollinators	Urban development & Scientific & Pedagogical & Politics & Economy & Environment & Social	Ongoing	3	Foundation and councils	Anyone	Advances biodiversity	1	4	3
499	Apothecary Arboretum	Urban development & Pedagogical & Environment & Social	2	4	Initiator	Local community	Medicinal garden in reclaimed urban spaces	2	4	4
500	Harvest Festival	Politics & Economy & Environment & Social	1	1	Church	Local community	To distribute frozen meal made with local produce	2	4	4
501	Weggeefwinkels	Economy & Social	Ongoing	Not specified	Volunteers	Anyone	To provide objects free of charge	4	4	4
502	Work before playing	Pedagogical	Ongoing	Not specified	Initiator	Children	Play structure made by the children for the children before they can play	1	2	4
503	A Living Library	Environment & Social	Ongoing	Not specified	Volunteers	Educators	Disused lands transformed into ecological ones	2	4	4
505	Taller Flora		Ongoing	Not specified	Initiator	Indigenous people	To integrate traditional handcraft into mainstream	3	3	4
506	Shmoogle	Scientific & Politics & Social	Ongoing	Internet	Initiator	Anyone	Randomise Google results, neutralising SEO	4	4	3
507	Mirage-Disused Public Property in Taiwan	Urban development	3	4	University	Citizens	To foster government action to use abandoned public buildings	3	4	1
508	The Making Make it Yours	Pedagogical & Environment & Social	Ongoing	3	Initiator	Designers	To create awareness about hair waste as raw material	2	4	1
509	House of Cars #1 and #2	Urban development & Economy & Social	2	4	University	Citizens	To create housing from recycled cars	2	4	4
510	Mobile Linear City	Urban development & Economy & Social	1	Not specified	Initiator	Citizens	To create a travelling city	4	4	4
511	Strike at Brannans	Politics & Economy & Social	1	4	Initiator	Workers	To raise money for the strikers	1	1	1
512	Hunnie	Scientific & Pedagogical & Politics & Environment & Social	4	1	Foundation	Visitors	Design and test new forms of nature experience from an ex-agricultural area	1	4	4
513	Institute for Human Activities	Economy & Environment & Social	Ongoing	Not specified	Fund	Local community	Art centre to give local population a source of income	2	4	4
514	Handboek voor de Stadswildernis	Economy & Social	1	Not specified	Institute	Homeless	To learn from the practices of homeless as an alternative to wasteful societies	3	4	1
515	Autonomy Cube	Scientific & Social	Ongoing	Not specified	Institutes	Public	Use internet anonymously	4	1	4
516	Degenerate Political Art. Ethical Protocol	Politics & Economy	Ongoing	Not specified	Initiators	Activists	To demonstrate contradiction of anticapitalist art	3	1	4

Number	Name	Category	Longevity	Town size	Maintenance	Users	Goals	Location parameter	User parameter	Action parameter
517	What will the Harvest Be?	Urban development & Economy & Environment & Social	Ongoing	4	Charity	Residents	Working garden to feed people	1	4	4
518	People's park	Urban development & Politics & Environment & Social	Ongoing	3	Local community	Local community	To create a public park on a disused private land	2	4	4
519	Addams-Dewey Gymnasium	Pedagogical & Social	Ongoing	4	Art galleries	Gallery visitors	Holistic education	2	4	4
520	Temporary Services	Pedagogical & Social	Ongoing	4	Artists	Marginalised people	To show art not as gentrification	4	2	4
521	Toynbee Settlement	Urban development & Pedagogical & Social	Ongoing	4	Charity	Local community	To tackle unfairness	1	2	4
522	Početnica - Toolkit for Joint Action	Pedagogical & Politics & Economy & Social	Ongoing	3	Initiator	Activists	To encourage discussion about social solidarity before using art	3	4	1
523	De stigmatisation	Social	1	3	Hospital	Patients with mental illness	To give people with mental illness tools to be part of society	2	1	1
524	Queer Sport	Urban development & Pedagogical & Politics & Social	Ongoing	Not specified	Initiator	Sport practitioners	For queers to reclaim mainstream sport practice	4	2	4
525	Women's House	Politics & Social	Ongoing	2	Association	Women victims of domestic violence	To empower women and make their stories visible	4	1	1
526	Public Library	Pedagogical & Politics & Social	Ongoing	Internet	Initiator	People who study	Access to knowledge	4	4	1
527	BioBui(L)t Txema	Urban development & Economy & Environment & Social	3	4	Crowdfunding and sponsorship	Residents	Temporary example of eco friendly building	2	4	3
528	Rosas - Movie Set	Pedagogical & Economy & Social	Ongoing	Not specified	Initiator	Film makers	Movie set available for free	2	2	3
529	Two Hats	Pedagogical & Politics & Social	2	Not specified	Initiator	Taxi clients with disabilities or elderly	To cut out bureaucracy to help people finding solution with healthcare workers	2	2	1
530	Convention on the use of space	Urban development & Economy & Social	Ongoing	Not specified	Initiators	Housing deprived	To provide legal assistance	4	4	3
531	Bait al Karama	Pedagogical & Economy & Social	Ongoing	3	Social enterprise	Women	To draw international attention to Palestinian gastronomy	2	2	4
532	Granby Four Streets Regeneration	Urban development & Economy & Environment & Social	Ongoing	3	Trust	Residents	Secure community assets	1	2	4
533	Promedios de comunicación comunitaria	Pedagogical & Politics & Economy & Social	Ongoing	4	Foundations	Local community	Access to media	2	2	1

Number	Name	Category	Longevity	Town size	Maintenance	Users	Goals	Location parameter	User parameter	Action parameter
535	Barrios Orquestados	Pedagogical & Economy & Social	Ongoing	3	Crowdfunding and foundations	Residents	Social integration	1	1	4
536	Reflector-cube	Pedagogical & Politics & Social	Ongoing	4	Collective	Protesters	To switch off tension with police	4	4	3
537	Room13Delmar	Urban development & Pedagogical & Economy	Ongoing	1	Initiator	Residents	Mobile art studio to make creation of art visible in public spaces	1	4	4
538	North side Workshop	Urban development & Pedagogical & Economy & Environment	Ongoing	3	Foundation	Residents	To provide space and support to residents	1	2	4
540	Arctic Perspective Initiative	Scientific & Politics & Environment & Social	Ongoing	Not specified	Initiative	Indigenous peoples	To collaborate with indigenous people	3	2	4
541	East of Eden	Scientific & Environment & Social	2	1	School	Pupils	Geodesic ecology dome	2	1	4
542	Bumi Pemuda Rahayu	Economy & Environment & Social	Ongoing	1	Institutes	Local community	Art centre	2	4	4
543	UnMonastery	Scientific & Politics & Economy Social	Ongoing	2	European Commision	Local communities	To address social issues caused by empty spaces	4	4	4
544	Diego de la Vega Coffee Co-op	Urban development & Economy & Environment & Social	Ongoing	4	Cooperative	Coffee drinkers	Chiapas Community support	2	2	4
545	Farmification	Urban development & Economy & Environment & Social	Ongoing	Not specified	Cooperative	Workers community	To transition from technology industry to food industry	2	2	4
546	Phone Story	Scientific & Pedagogical & Economy & Social	Ongoing	Internet	Company	Smart phone users	To create awareness about impacts of phone production	4	4	1
547	Space on Earth Station	Scientific & Environment	1	Not specified	Initiators	Anyone	To explore environmental issues	4	4	1
548	Aerocene	Scientific & Environment & Social	Ongoing	Not specified	Initiator	Anyone	Lighter than air tethered flight	4	4	4
549	Small Truck	Urban development & Economy & Social	Ongoing	Not specified	Initiator	Anyone	Human powered freight transport	2	4	4
551	Pubic Lab	Scientific & Pedagogical & Environment & Social	Ongoing	Internet	Charity	Anyone	DIY science	4	4	2
552	Beauty in Transition	Economy & Social	Ongoing	Not specified	Council and foundation	Homeless	Mobile hairdresser	2	2	4
553	Day after Debt	Economy	Ongoing	Not specified	Public	Anyone	To raise funds to buy back students loans	3	1	4

Number	Name	Category	Longevity	Town size	Maintenance	Users	Goals	Location parameter	User parameter	Action parameter
554	Edible Estate #11	Urban development & Environment & Social	4	4	Group	Local community	To create a common urban garden	1	2	4
555	New Linthorpe	Social	Ongoing	3	Initiators and Institute	Residents	To find new uses for local clay	2	2	4
556	Guide for Youth Protestors	Pedagogical & Politics	Ongoing	Not specified	Not disclosed	Protesters	Knowledge	3	2	1
557	Public Dissentiment	Politics & Economy & Social	Ongoing	Internet	Initiator	Anyone	To create financial implications for a company's misdeeds	4	4	3
558	Anti Eviction Mapping Project	Urban development & Politics & Economy & Social	Ongoing	4	Grants	Tenants	To facilitate resistance	1	2	2
559	Range Studio	Urban development & Social	Ongoing	3	Initiators	Artists	To support artists	2	1	4
560	Power Call	Environment & Social		3	Sponsorship	Passer-by's	To generate energy while working together	1	4	4
561	Rituals Adjacent to Capitalism	Pedagogical & Economy & Social	Ongoing	Not specified	Initiators	Anyone	To innovate	3	1	3
562	Flatbread Society	Urban development & Pedagogical & Environment	Ongoing	4	Investors	Local community	To provide a multi-functional oven	2	4	4
563	Crowd-sourced Intelligence Agency	Scientific & Pedagogical & Politics & Social	Ongoing	Internet	Initiators	Anyone	To check privacy efficiency on the web	4	4	3
564	The Knotted Line	Pedagogical	Ongoing	4	Initiator	Educators	To share historical knowledge of incarceration	3	1	1
565	Klozar Weaving	Pedagogical & Economy & Social	Ongoing	3	Initiators	Women weavers	Support women's entrepreneurship	3	2	4
566	Parasite Lottery	Economy	Ongoing	Not specified	Lottery	Art organisations	Collective funding system	3	3	3
567	Walking Silvermines / Siúlóid Bhéal Átha Gaghann	Pedagogical & Politics & Economy & Social	Ongoing	1	Initiator	Residents	Historical stories to develop tourism	2	2	1
568	Green Corners	Pedagogical & Environment & Social		3	Initiators	Pupils	To educate about air pollution	2	1	1
569	Crafted in Istanbul	Urban development	Ongoing	4	Initiator	Creatives	Map to make craftsmen visible	2	3	2
570	Cooperative Spółdzielnia Ushirika	Pedagogical & Economy & Social	Ongoing	4	Foundation	Workers	To provide workplaces	1	1	3
571	Dünyada Mekan	Urban development & Politics & Environment & Social	Ongoing	Not specified	Donations	Office workers	Solidarity network	1	2	4
572	Topographía en declive	Urban development & Social	Ongoing	4	Residents	Residents and visitors	Ramp to facilitate access	1	4	4

Number	Name	Category	Longevity	Town size	Maintenance	Users	Goals	Location parameter	User parameter	Action parameter
573	Adaptable / Artifacts for Street Trade	Urban development & Politics & Economy	Ongoing	4	Initiator	Street vendors	To criticise employment system	1	1	3
574	En Tiempo de crisis	Pedagogical & Economy & Social	Ongoing	4	Initiator	Commuters	Mobility resource	2	4	3
575	Matria	Pedagogical & Politics & Social	2	Not specified	Initiators	Indigenous peoples	Use indigenous languages in everyday life	3	3	3
576	Sidra Pino	Politics & Economy & Social	3	4	Theatre and workers	48 workers	To gain visibility and compensation	2	1	4
577	Company Drinks	Economy & Social	Ongoing	4	Commercial CIC	Drinkers	To create a community economy	1	2	4
580	Talking Hands	Economy & Social	Ongoing	3	Commercial	Refugees and asylum seekers	Professional training and literacy	1	1	3
581	The Para-Site School	Pedagogical & Politics & Social	7	4	Sponsors	Migrants	Pedagogical research	4	3	1
582	The Labyrinth Exchange	Pedagogical & Social	Ongoing	3	University and city council	Patients	Co-design healthcare	2	3	1
583	Between Two Seas	Urban development & Environment & Social	Ongoing	4	Initiator	Hikers	Experience the city while walking	2	4	2
584	No Blood No Foul	Pedagogical & Social	1	3	Local authorities	Young people	To propose a Youth Policy Initiative	2	2	4
585	GRAFT A Soil Based Syllabus	Urban development & Pedagogical & Environment & Social	Ongoing	3	Museum	Residents	Practical pedagogy	3	3	4
586	Vetch Veg Community Garden	Urban development & Environment & Social	Ongoing	3	Local council	Local community	New green space	1	2	4