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THINK

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editorial

Personal Space

I like to imagine personal space as a circle of chalk around us. Just like we are sovereigns over our own bodies (or, at least, we should be – looking at you, reproductive laws), our personal space, those few meters around us, falls under our remit. But how big is this circle? What's the radius of our personal space?

0.45 metres.

Personal space is one of those things that you're aware of once it's been breached. I still have flashbacks to smelling my classmate's lunch of *ftira bit-tonn taż-żejt* on their breath. *Shudders* Anyway, moving swiftly on, why is it important?

Well, personal space gives us a sense of control in a world where we are increasingly not in control. We feel threatened when someone is in our personal space, like a cornered rat or dog. Our personal space is our own little kingdom, a fusion of our cultural and social norms, as well as our identity and sense of self that dictate how we manage and maintain our space. We might be unable to control what goes on outside the circle, but we can control what happens in those .45 metres. Join us as we open the circle!

Prof. Ing. Simon G. Fabri
Editor-in-Chief
simon.fabri@um.edu.mt

David Mizzi
Editor
david.mizzi@um.edu.mt

Rebekah Zammit
Editor
rebekah.zammit@um.edu.mt

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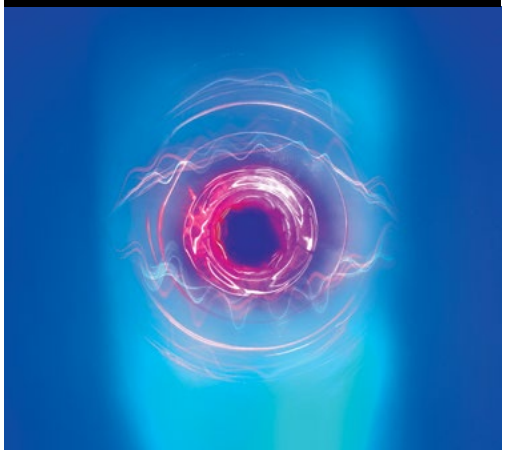

Ever observant and ever curious, a watchful eye invites introspection into what personal space is when the line between public and private is blurred.

focus articles

CONTRIBUTORS

WITHOUT BORDERS
Prof. Mark Harwood
James Moffett

BOOK REVIEW
Prof. John P. Portelli
Rebekah Zammit

DESIGN
Alexandra Alden
Prof. Philip Ciantar

STUDENT
Gabrielle Cachia
Dr Valeria Vanesio

FOCUS
Timothy Alden
Prof. Andrew Azzopardi
Dr Claire Lucille Azzopardi Lane
Prof. Godfrey Baldacchino
Dr Ing. Marvin Bugeja
Catherine Camilleri
Dr Joan Camilleri
Prof. Carmel Cefai
Prof. Alexiei Dingli
Jonathan Firbank
Carsten Carl Grech
Christian Keszthelyi
Dr Joe Schembri
Dr Graziella Vella
Dr Mary Grace Vella

FEATURES
Simone Azzopardi
Dr Daniel Buhagiar
Prof. Ing. Duncan Camilleri
Prof. John Chircop
Andrea Cuschieri
Dr Jefferson De Oliveira Mallia
Prof. Ing. Robert N. Farrugia
Prof. Ruben Gatt
Dr Sholeem Griffin
Sebastião Miranda
James Moffett
Dr Anna Eliana Pastoressa
Dr Oleksii Pirotti
Antónia Ribeiro
Prof. Tonio Sant
Sarah Schembri
Diane Scicluna
Dr Charles Xuereb

IDEA
Dr Roberto Debono
Prof. Anna Khakee
David Mizzi

START UP
Lion Preissl
Zack Xuereb

ALUMNI
David Mizzi
Emma Tranter
Francesca Tranter

LAB TO LIFE
Jurgen Aquilina
Massimo Borg
Prof. Ing. Emmanuel Francalanza
Christian Keszthelyi
Jasmine Mallia
Prof. Ing. Paul Refalo
Dr Peter Xuereb

TO-DO LIST
THINK Team

ILLUSTRATIONS
Gabriel Izzo
Nicole Pace

PHOTOGRAPHY
James Moffett
Kristov Scicluna

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EDITORIAL
Prof. Ing. Simon G. Fabri EDITOR-IN-CHIEF
David Mizzi EDITOR
Rebekah Zammit EDITOR

DESIGN
Gabriel Izzo DESIGNER
Nicole Pace DESIGNER

COPYEDITING
David Mizzi
Rebekah Zammit

PROOFREADING
Amy Borg

PRINTING
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University of Malta, Msida, Malta
Tel: (356) 2340 2340 | um.edu.mt

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20 Years of EU Membership

Author: **James Moffett**

A photo taken during the Institute for European Studies' conference *20 Years of EU Membership: Taking Stock, Moving Forward*, held at the UM Valletta Campus on 2 May 2024
Photo by James Moffett

Divisive and polarising as the lead-up to 1 May 2004 might have been, this date marks a significant turning point in Malta's history: its introduction — along with nine other countries — as the newest Member State of the European Union. This year, celebrating the 20th anniversary of this landmark moment, **THINK** met with Prof. Mark Harwood, Director of the Institute for European Studies at UM, to discuss the island's journey since then and where it is headed.

'It was always about having economic and physical security. Being in a bigger group can help small countries weather globalisation, because [as a union] they can negotiate with the bigger countries, like the US and China.' For Harwood, the biggest benefit of being part of the EU is the expertise of other countries, which can aid a small island state like Malta. Whether it is climate change, overseas development, or human rights in the Mediterranean, 'we get to participate in a collective action.' Other benefits include the adoption of the Euro, which has become a much more stable, international currency.

However, EU membership is not without its challenges. One of the key dilemmas lies in the balance between sovereignty and collective decision-making. As Harwood points out, Malta, traditionally aligning more towards pro-Palestinian sentiments, often finds itself at odds with other Member States, such as Germany, which staunchly support Israel. This dynamic highlights the delicate dance of being part of a collective while also maintaining individual stances on global issues.

Reflecting on the historical context, Harwood highlights how larger EU Member States, such as France and Germany, have reaped significant economic benefits, particularly in the case of Germany's post-World War II rehabilitation and subsequent economic prowess. 'However, not all benefits are distributed equally among Member States.' The adoption of the single currency, for instance, has allowed countries like Germany to leverage a weaker Euro to boost exports, a luxury not equally enjoyed by all. 'The Euro is not as strong as the Deutsche Mark would have been. So Germany actually gets to manufacture and sell more because it is tied to a currency which isn't as strong as its old Deutsche Mark used to be.'

Within this geopolitical landscape, small nations like Malta are able to participate in a wider system, one which is often much better informed. 'The negative side is that the bigger system is often looking to protect the interests of large Member States.'

Looking ahead with cautious optimism tempered by scepticism, Harwood acknowledges growing dissatisfaction within Malta regarding mainstream political parties and predicts a potential rise in radical voting patterns in European Parliament elections. 'We tend to get people going out and voting because they see the EU as a problem or as part of the problem.' This trend might lead to increased Euroscepticism and a more contentious political landscape within the country.

As Malta commemorates two decades of EU membership, it stands at a crossroads, grappling with both the opportunities and challenges that come with integration into the European framework. The journey ahead promises to be complex, requiring careful navigation and proactive engagement to ensure Malta's interests and values are upheld within the broader European context.

The Institute for European Studies recently held a conference on Malta's 20 years of EU Membership, one of a series of events being organised by the Institute throughout 2024 to commemorate this anniversary. The Institute also published a paper series marking this anniversary, copies of which can be found on OAR.

NO PLACE CALLED HOME

Author: **Rebekah Zammit**

At the end of a holiday, no matter how much you dread leaving, some small part of you just can't wait to get home. And the closer you get to home, the greater that desire grows. But what if 'home' is no longer home?

For many of us, home is the place where we grew up or where our family lives. It is the place where we lay our heads at night and where food tastes the best. But if these links that bind us to a place fall apart, 'home' loses its touch. Then, the feelings of belonging and familiarity start to seem out of place. In the poetry collection *Here Was*, published in 2023, Prof. Emeritus John P. Portelli (University of Toronto) attempts to capture this sentiment and the essence of home through its absence.

The poet speaks from the perspective of one who *chose* to leave his home, Malta, because it did not give him room to be. We see him experience a simultaneity of push and pull from a land that should have been 'home':

'When I fled the island
of melancholy and small-mindedness,
burdened with the weight
of memories,
drained of emotion,
I clutched the photo tightly
of you holding me on your lap'

— 'To My Mother', p. 68

Leaving everything behind, he finds belonging amongst travellers and migrants – he understands that something has driven them from their nest. Abroad, away from his people, he is consistently mistaken for a rainbow of ethnicities based on his appearance:

'I was asked,
am I from Armenia or from Lebanon?
am I Spanish or am I Italian?
nobody noticed I am Maltese.'

— 'I Was Asked', p. 32

Possibly, this very mix up is what allows him to take a step out of his shell and understand people from all the ethnicities

Prof. Emeritus John P. Portelli

he is mistaken for, many of whom are not foreigners by choice: 'I see and feel the pain and anger of the foreigner' ('The Foreigner', p. 33). Then, one with them, we see him grapple with their pain – all those who have been unjustly stripped of their home – to show the injustice of black-and-white thinking. He is firm in its reductive and harmful nature; only death and forced displacement follow when we fail to recognise the humanity in others and their suffering.

'as of today, your children old and young
are chastened: will they ever
call Gaza "home"
again?

— 'To A Gazan Farmer', p. 24

Portelli cannot reconcile with the pain of losing one's sense of home. On top of this, his nomadic way of life means his selfhood can never seem to settle either. His voice is riddled with the bubbling anxiety of one who depends on travel to unfold the futurity of himself. He must put effort into living every moment before becoming part of the here was.

'here was a Palestinian valley
here was a Palestinian village
here was a Palestinian city
here was a Palestinian orchard
here, here...'

— 'Here Was', p. 16

Intimately, he takes us to the place he wishes to be his eternal bed, on the edge of Dingli Cliffs. But for now, trembling with life and much to say, Portelli speaks as a global citizen, free to be, everywhere, even if he has no place to call home. Propelled by his connection with humankind, he stands witness, eyes wide open to the past, present, and future of each place he is in; there he declares, 'here was'. T

Portelli, J. P. (2023). *Here Was*. Horizons; Word and Dee Publishers.

Redefining Spaces with the SPACE Project: Bringing the Arts into the Hearts of Communities

Author: **Alexandra Alden**

This year, the School of Performing Arts at UM has launched an initiative designed to break the conventional boundaries between performing arts and surrounding communities. Through the SPACE project (School of Performing Arts Community Engagement), their goal is to create social impact by bringing the arts into personal and communal spaces, including hospitals, elderly homes, migrant centres, correctional facilities, youth centres, and schools.

In a recent interview, Prof. Philip Ciantar, Director of the School of Performing Arts, emphasised the need for performing arts to extend beyond traditional creative spaces like theatres. He noted that the arts are often confined to predefined venues, making them less accessible to marginalised or isolated communities. By taking performances into more personal and familiar settings, SPACE aims to bridge this gap, ensuring that more people can experience the therapeutic qualities of the arts. This approach not only enriches the cultural landscape but also addresses social isolation by creating an inclusive environment where people from all walks of life can participate.

The most recent SPACE initiative took place at the St Vincent de Paul Long Term Care Facility and was directed by Mr Douglas Comley. Titled *Collectively for Others*, the event involved students from the theatre, music, and dance departments performing both in the main hall and across various wards, ensuring accessibility for all residents. The project focused on making performances accessible and enjoyable by including historical pieces and familiar Maltese songs. This approach engaged their target audience, who were from a different generation than the students, allowing the students to connect with an age group they might not usually interact with.

In addition to providing real-world settings for students and having a direct impact on communities, the SPACE project includes public lectures with educational benefits. These lectures are intended to foster a deeper appreciation for the performing arts and their therapeutic benefits. Ciantar believes that through such initiatives, students can realise the significant impact their artistic talents can have on others, preparing them for varied professional roles and enhancing their practical skills. He also mentioned that the general Maltese public still perceives the arts as merely a 'hobby', an antiquated idea that must continue to be challenged to open up the arts world further.

By integrating performing arts into the fabric of our daily lives, the SPACE project can help redefine how and where art can exist. It is transforming ordinary spaces into places that uplift and provide connection. It serves as a necessary reminder that art does not need to be confined to stages or galleries; *it can thrive wherever there is human spirit.*

***Collectively for Others* outreach event at the St Vincent de Paul Long Term Care Facility, directed by Mr Douglas Comley as part of SPACE project**

Photo by Camille Fenech

Improved Accessibility to Historical Notarial Documents in Malta

Author: **Gabrielle Cachia**

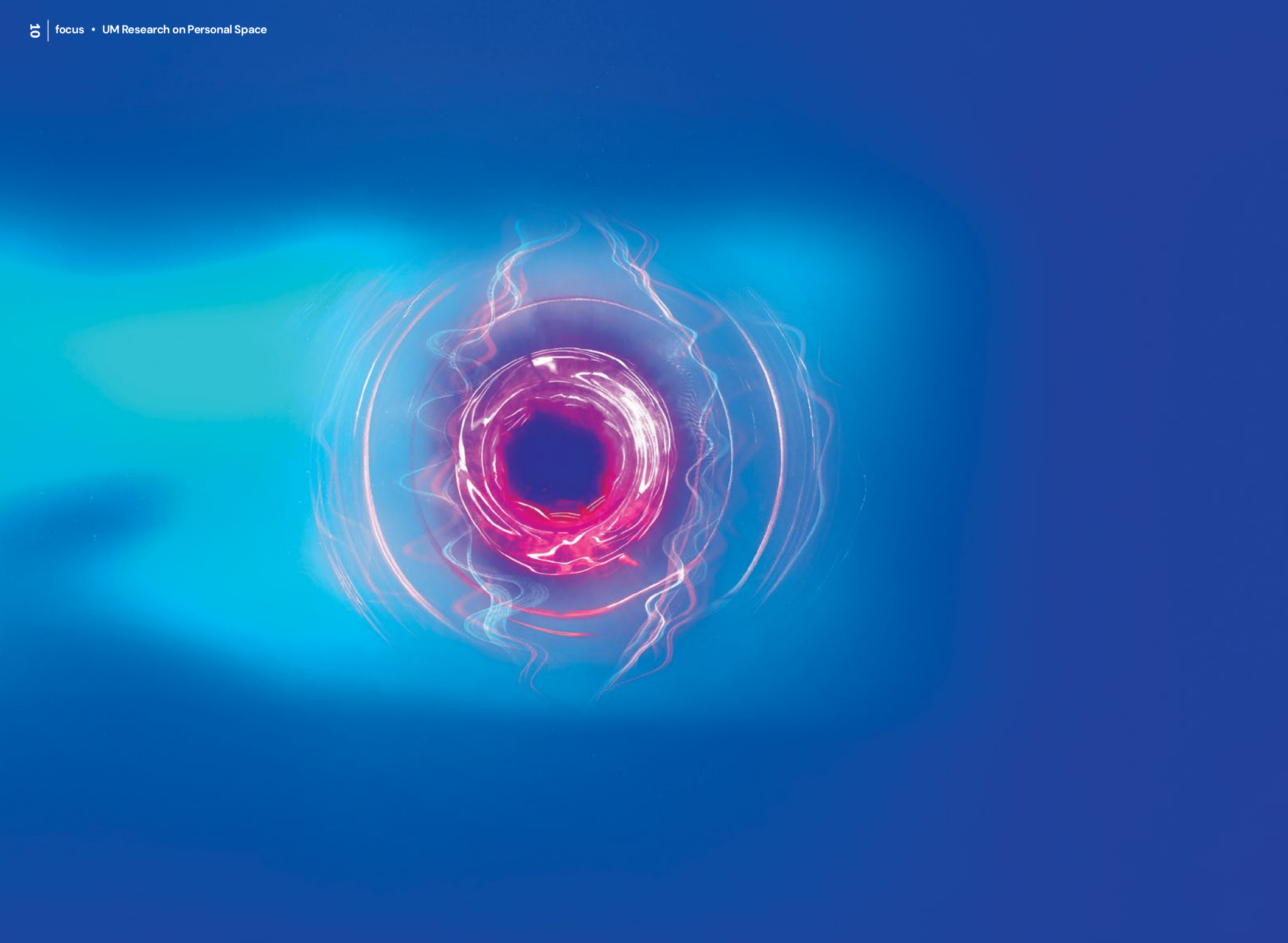
A lot of literature has been written about the historical and legislative significance of notarial records in Malta. However, research about its archival history still needs to be fully rediscovered. What are the archival relations between the two repositories of the Notarial Archives in Valletta, one located in Mikiel Anton Vassalli Street, the other in St Paul and St Christopher Street? Also, how can accessibility to all the documents preserved at these two repositories be improved?

Throughout my dissertation, supervised by Dr Valeria Vanesio, I focused on the Notarial Archives' most crucial legislative and administrative changes, from the Hospitaller to the British period, and also through recent times. Some of the most significant developments include the transferring of the archives to alternative premises, which took place in different centuries. This includes the migration of the documents to another building for better protection from the damages of WWII.

Unfortunately, however, a number of documents have either been destroyed or lost throughout the years, not only due to bombardments. Another relocation of the archives was done in view of the extensive rehabilitation projects taking place at the repository in St Paul and St Christopher Street, now under the responsibility of the National Archives of Malta and managed by the Notarial Archives Foundation. In fact, my study was conducted during a transitionary period in the history of the Notarial Registers Archive of Malta, which meant that the documents which I had access to were limited.

Despite this challenge, I tried to create a first archival guide to these notarial records. This will help improve accessibility and foster new research. The gathered information was organised in line with standards set out by the International Council on Archives. Furthermore, the guide lays the foundations for tracing the archival connections among different kinds of notarial documents, some of which are not preserved in the same building but have been drafted or prepared by the same notary. This will make it easier for all users – whether researchers or lay persons – to consult this guide, which could even serve as a template for similar archival tools in the future.

This research was carried out as part of the Master of Arts in Archives and Records Management, Department of Library, Information and Archive Sciences, Faculty of Media and Knowledge Sciences at the University of Malta.



Personal Space

Personal space goes beyond that chalk circle around us. Our homes are paragons of personal space, for example. We look at the technology being developed to protect that space, studies that explore the curious custom of naming our homes, as well as the similarities between being a leader at home versus at the work place.

Our homes are a private space that serve as a sanctuary from the public world outside it. Pushing this concept a little further, we explore how that private space affects our quality of life through the lens of a local study on the quality of life in Gozo.

Maintaining our personal space enables us to have a safe space to reflect and explore our thoughts and feelings. But, we can only really fully 'let go' in space when we feel accepted and welcome just the way we are.


WOULD YOU
NAME YOUR
HOUSE?

Author: **Timothy Alden**

In Malta, the answer is overwhelmingly 'Yes'. This is one of the few countries in the world where a majority of houses do not have just numbers but also names. Homes are an extension of our personal identity, and house naming serves as a ritual, emphasising a wish to interact with the community and express something about oneself or one's family. ***Prof. Godfrey Baldacchino****'s research explores this sociological phenomenon in detail.*

'Naming one's house is a deeply personal choice,' Prof. Godfrey Baldacchino (from the Department of Sociology, UM) says. 'And yet, one can look at all these individual personal choices across localities and analyse them to better understand society as a whole.' Baldacchino's interest in house names started while walking through Malta's villages as a young man and noticing that the names of houses in the town or village core, which are typically the oldest, differed from those on the outskirts of the settlement. He concluded that something as subtle and simple as house names can tell us a lot about how a society changes over time and was inspired to eventually carry out academic research on the subject.

WHAT THE DATA SAYS

In 2023, Baldacchino and his students carried out a study of Maltese house names, looking at the Local Council Elections Electoral Register of October 2022 to gather the needed data over ten localities in Malta. The research provided house names and addresses, allowing them to segment the data according to which houses have names or not. The research revealed that 66.1% of Maltese homes have names. The idea that naming one's home is a way of expressing oneself is clear when one ties it to home ownership, as the proportion of names is highest in localities where homes are predominantly owned by their occupants. Marsaskala, Mosta, and Għaxaq show the highest proportion of named dwellings at 82%, 77%, and 75% respectively. On the other hand, an area with a high stock of rental housing, Senglea, only has 8% of houses with names.

The question then arises regarding what the names of people's houses are telling us about them. Thanks to Joseph G. Borg's 1977 book, *A to Z of Malta and Gozo*, researchers were able to make a historical comparison, as Borg's book shows which streets were already in existence in 1977. Therefore, researchers could compare the names of houses built before 1977 with those built afterward. In doing so, they were able to reveal a clear trend of increasing secularism, as people went from largely naming their houses after religion to also naming their homes along more personal themes. The share of religious names has dropped from 16% to 10%.

'We organised the house names into six categories, the first being religion. Then one finds houses named after the persons living in the house: names, nicknames, family names, professions, and so on. Then there is sport, with people obsessed with certain football teams or stadia. There are, for example, at least 16 Liverpool fans in Mosta alone, with houses named Anfield after the Liverpool football stadium. Next would be names inspired by the lay of the land, such as the landscape, including geographic features which may have been there previously and what one can see from one's window or roof. The fifth category would be politics, ranging from historical names, references to events such as

A selection of house names showing personal and religious themes
Photos by Prof. Godfrey Baldacchino and James Moffett

Independence, or references to political figures such as calling one's house Dom (after former prime minister Dom Mintoff). Then there is the inevitable miscellaneous category, which we keep as small as possible, but one always has some names where one can never tell what they stand for. That obliges one to speak to the owner of the house,' Baldacchino elaborates.

Baldacchino points to a field trip on a windy Saturday morning in November 2023 as a special step forward in the study of house names, when students from the Department of Sociology went door to door in Senglea. Students were sent in pairs, and in cases where there were international students, they were paired with Maltese speakers. The students knocked on doors and asked residents about the names behind their houses as part of the study-unit 'Sociology of Space and Place'. Residents proudly explained their choices. By showing an interest in people's lives and their personal stories, the students secured a phenomenal response.

Within a minute, the students found themselves inside people's homes. Baldacchino recalls how residents were glowing as they told students why they bought the house and how they decided to name it. At first, students were rather afraid of accosting complete strangers in this way, but the reception was positive, and as with any such challenge, it got easier as the exercise progressed. In a sense, the exercise of collecting the stories behind the names was educational in and of itself, providing an insight into the way people live and react to an interest shown in their way of life, revealing the people of Senglea as being warm and welcoming.

The most common house name in Senglea is Maria Bambina, based on the patron saint. The second most popular is Redeemer or Redentur, referring to a statue in Senglea that is a subject of devotion and pilgrimage and ascribed with miraculous powers.

ORIGINS OF NAMING HOUSES

When asked how the tradition of naming houses in Malta began, Baldacchino explained that his research tried to contextualise the naming tradition in the wider European context. There are few trends of house naming in continental Europe, but the United Kingdom seems to be the place where this practice is most prevalent. However, in the United Kingdom, it is rural houses which are most often named, while in Malta, it is the opposite, with urban homes most often being named. Baldacchino remarks that it is likely the Maltese practice of naming houses was inspired by the cultural exchange with Britain.

'For a time, in Malta, the only way to identify a person's house was by its name. The practice of numbering houses is a fairly recent phenomenon. I lived in Fgura for 20

years in a non-numbered house named Mount Carmel, and I remember when, in the 1980s, my parents received a letter from a state department informing us what the number of our house was going to be when previously, it had only ever had a name. Thereafter, there has been less motivation to name one's house, given that it is less necessary for its identification,' Baldacchino recalls.

THE FUTURE OF NAMING HOUSES

The trend towards naming houses is likely to decrease, Baldacchino remarks, as people increasingly live in apartments and flats with common entrances. This is not only a practical consideration, as people no longer build their own houses, but it is also because one is more likely to have temporary residents renting the property rather than family units spending a lifetime rooted in the same place.

Nonetheless, blocks of apartments may still be named in a more traditional way, after the developer or according to some locally relevant feature. However, the individual apartments would be unlikely to have names.

'People give houses names as a form of attachment. It is a form of self-recognition. You name it because it is your house. One builds their house with effort, labour, and at huge expense. Anything that requires that much work deserves a name. So, naming houses is a tradition on the decrease. We are living in a time when the number of occupied houses has reached a plateau, which is now beginning a decline. Nonetheless, if one has always lived in an apartment, that apartment may still be as significant as the largest house. It is your home,' Baldacchino observes.

What can we expect for house names in Malta in the near future, then? Baldacchino forecasts larger linguistic diversity; so far, English has been the most common language for house naming, followed by Maltese and then Italian. With the plethora of foreign migrants now making Malta their home, at least some of whom have or will purchase their own homes, we can expect a surge in houses with names in languages such as Punjabi, Arabic, Tagalog (Filipino), or Albanian. 'House names are a true window onto social change, reflecting and respecting a changing Maltese social landscape,' Baldacchino concludes.

A special thanks goes out to Prof. Baldacchino's students for their excellent work: Kylie Aquilina, Jana Serena Atteneder, Jana Helene Azzopardi, Enoch John Camilleri, Emma Louise Cooper, Zindzi De Barra, Amy Galea, Stefan Galea, Niamh Kelliher, Aideen Ledwidge Lanigan, Abigail Mula, Angelina Saj, Elaine Sciberras, Daniel Henry Solberg Bell, Gabrielle Spiteri, Rowena Sultana, and Diane Zammit.

LEADERSHIP UNVEILED

NAVIGATING THE MULTIFACETED PATH TO SUCCESS

Author: **Christian Keszthelyi**

Work-life balance is a keyword in today's dynamic landscape of challenges and diversity. Understandably, it is better to keep work and home separate to maintain mental health. However, as much as leadership stands out as a guiding force in navigating towards shared goals and collective success at the workplace, such skills may overlap with the requirements of home.

Dr Joe Schembri, a lecturer at the UM Faculty of Economics, Management and Accountancy, facilitated the panel discussion, 'Leading from the Front', which was held at UM on 25 October 2023. The roundtable brought together Prof. Leonie Baldacchino, former director of the Edward De Bono Institute for Creativity and Innovation; Joseph Sultana, original founder of Ascent Software, which has since been sold to an international group; and Ray Bonnici, the Chief People Officer of APS Bank. Throughout the discussion, Kylie Decelis kindly took notes.

During the panel, which was held as part of the Leadership and Personal Development study unit in UM's new International M.B.A., five important themes emerged regarding effective and efficient leadership: transferable leadership skills between the workplace and home, leadership's context-dependent nature, the selection of the right people for the proper role, inspiring the youth, and the role of expertise in leadership.

FROM WORK TO HOME

Prof. Baldacchino emphasised that leadership is a multifaceted concept. The dynamics of being a leader can vary greatly depending on the context. For example, the skills and strategies an individual applies in their workplace differ from those they use at home in a family scenario.

'It's important to understand that being a leader at work isn't the same as being [a leader] at home. These scenarios come with different challenges, aims, and expectations of a person as a leader. You usually need to be organised and focused on getting results at work. Conversely, it's more about understanding emotions and being sensitive to others at home. But there are skills you can learn that work well in both places, helping you excel in your professional and personal lives alike,' Baldacchino said. These fundamental transferable skills are empathy, emotional intelligence, and creative thinking.

Firstly, empathy is a cornerstone of effective leadership at work and at home. Empathetic leaders at work listen to their team, making things run more smoothly and boosting productivity. Likewise, empathy at home improves communication, builds trust, and strengthens bonds.

Secondly, as a supporting skill, a high degree of emotional intelligence enables leaders to navigate human emotions effectively. Emotional intelligence helps solve conflicts, unite teams, and make

Images (Left & Right) taken during the Faculty of Economics, Management and Accountancy panel discussion, 'Leading from the Front', held at UM on 25 October 2023.
Photos by Kristov Scicluna

decisions in the workplace. Similarly, at home, it empowers individuals to handle family dynamics, resolve disputes, and create a supportive environment.

Thirdly, creative thinking is a priceless skill in any setting. It catalyses problem-solving and innovation. In leadership at work, creative thinking can spark innovative solutions and give an edge over competitors. At home, it fosters adaptability and finding new ways to tackle daily issues. Creative thinkers excel at finding solutions that suit everyone, whether in a meeting or with family.

Yet, an important personality trait has emerged as an essential part of effective leadership: authenticity. 'During the lectures, we discussed authentic leadership and that this is becoming a requirement today as our employees, clients, and all stakeholders expect us to be real. Being authentic is tied to being credible, someone who can be believed, which is essential for all leaders,' Schembri told **THINK**.

NOT IN A VACUUM

Leadership happens in context. It is impossible to take leadership out of its surroundings as it is a concept deeply entwined with its environment, said Joseph Sultana, who founded Ascent Software twenty years ago.

'The kind of leader a company needs depends on its goals. Elon Musk and Steve Jobs have been known as visionaries who've shaken up the tech world. But they've also stirred controversy because they're super intense and assertive. They've shown amazing leadership in reaching their goals, but this has made people wonder about the well-being of those who work with them,' Sultana said.

Effective leadership hinges on an organisation's specific objectives and values. If someone wants to work for a company whose ultimate goal is to conquer the cosmos or plant devices in human brains for de facto telepathic abilities, Elon Musk is the perfect choice.

Over the past two decades, research has changed how we view leadership. We have moved away from thinking that leaders are born with specific traits that make them perfect for any situation. Instead, today's research points towards the viability of situational leadership. This means the relationship between leaders and their followers depends on the context and the task.

'This has important implications, at least on two levels,' Schembri said. 'First, it implies that leadership can be improved, sharpened, and developed over time. This is a significant departure from the idea that some people are born leaders. Therefore, it encourages employees, team members – and anyone else – to invest in their own leadership development, which makes them more effective leaders. Secondly, it allows us to think of leadership potential in a context, in specific situations, and therefore to look at personality traits which were in the past associated with leadership with a pinch of salt,' he added.

THE RIGHT FIT

Recognising individual talent is no longer enough for a leader to support their team. Leaders must assess how well someone will collaborate within a team. Ray Bonnici, Chief Officer of People and Culture at APS, emphasised that determining the right people and aligning them with the team is a cornerstone to success. Finding a balance maximises each team member's potential and minimises the risk of toxicity that may disrupt team cohesion and productivity.

'Recognising the harm that toxic individuals can inflict on a team serves as a reminder that selecting the right people for the right roles is not only a strategy for optimising

performance but also a safeguard against the potential pitfalls that can arise from toxic personnel,' said Bonnici.

Schembri agreed: 'The key to high performance lies in finding the right balance between having skilled individuals and fostering a cohesive team dynamic. Influential leaders create a safe environment where team members understand their roles, can question norms, and fully commit to shared goals. Achieving this balance is challenging but essential for any coach, manager, or leader.'

INSPIRING THE YOUTH

As the labour market swells with an increasing need for talent and the available pool is getting younger, an outstanding leader must be able to recognise the unique qualities and values that define the younger generation.

Young people today demonstrate high social awareness, care deeply about environmental issues, and hold strong ethical values. These qualities significantly impact their preferences when selecting employers. They look for companies prioritising social and environmental responsibility alongside profit, seeking a genuine commitment to these causes.

This change in priorities requires leaders to adapt their leadership styles and organisational values to align with the younger workforce. Great leaders embrace the youth's values, integrate them into the company's mission, and genuinely engage in social and environmental efforts. Leadership hence evolves into a bridge that connects with the passion and dedication of the younger generation, creating an inclusive, environmentally-conscious, and future-oriented workplace.

'Organisations need to deeply understand what motivates young people to attract the best talent in the labour market's tight battle and effectively deploy them in their teams. Values like authenticity, sustainability, and quality of life are becoming central issues for the youth. Organisations need to align their missions with these new aspirations but to do so authentically,' Schembri said.

CONSTANT LEARNING TO EXPERTISE

Expertise is pivotal for a leader to support individuals and guide teams towards successful operations. Bonnici underscored the essential nature of fostering an inquisitive mind and a lifelong thirst for learning. 'It's physically and intellectually impossible to become an expert in every specialised field within one's business. Therefore, a broad understanding of various topics through continuous learning holds immense value,' Bonnici said.

Through continuous improvement of their knowledge and widening expertise, leaders become equipped to assess decisions, make informed judgments, and assemble the right teams. A foundation of general knowledge sharpens leadership skills and provides a competitive edge.

'Continuous learning is probably even more critical than expertise,' Schembri said. Continuous learning is the investment people make in themselves as professionals. It involves self-reflection on whatever we do and identifying gaps in our skills, attitudes and behaviours to address them over time and become better team players, followers, and leaders.

This event was possible thanks to the Leadership and Personal Development study unit, part of the International Master of Business Administration programme. Students were invited to reflect on their performance and work on a personal development plan, in which they considered strengths and weaknesses, among other things, and thought of ways of addressing them.

FINDING THE RAINBOW

Safe Spaces for Gender and Sexual Diversity

Author: **Catherine Camilleri**

Over the last decade, Malta has emerged as a safe haven for LGBTQIA+ people. However, despite boasting some of the best legislation in the world for gender and sexually diverse identities, LGBTQIA+ people in Malta still face challenges accessing safe spaces. But why are safe spaces important for gender and sexual diversity, and what can society do to make Malta safe for all people?

For the last eight years, Malta has topped the ILGA Rainbow Map and Index as Europe's most accepting country for people who identify as part of the LGBTQIA+ community. With inclusive legislation like laws on same-sex marriage and the banning of conversion therapy, Malta has become a haven for gender and sexually diverse people searching for a space to be themselves.

With ongoing dialogue and the rise of inclusive spaces, we might assume that there is little more to be done to make Malta a safe place for all its citizens. However, Dr Claire Azzopardi Lane from the Department of Gender and Sexualities at UM's Faculty for Social Wellbeing knows all too well that what happens on paper takes longer to sink into the social fabric. Research at the undergraduate, postgraduate, and doctorate levels paints a stark picture of the challenges that gender and sexually diverse people face when deprived of a safe space to explore their identity. This raises the question of whether Malta is truly a safe space for LGBTQIA+ people and what can be done to ensure safety for everyone in our community.

COMING OUT: EXPLORING IDENTITIES IN SAFE SPACES

Gender and sexual orientation – who we are and whom we are attracted to – exist on spectrums beyond the hetero- and cis-normative binaries. For people who identify in ways other than cishet (cisgender and heteronormative), exploring this facet of personal identity and expressing it to others, or 'coming out', can be a harrowing experience, fraught with shame and self-judgement. Some individuals experience serious mental health challenges like depression, anxiety, body dysmorphia, and gender dysphoria when met with unsupportive and unsafe spaces. But when people find safe and non-judgemental spaces to explore and understand who they are, coming out can be the beginning of self-acceptance and transformation.

The community within safe spaces helps people find support and social connection, validating their experiences and empowering them with the stories of others. Safe spaces help people gain information about LGBTQIA+ realities and the resources they can access to safeguard their wellbeing, such as mental and sexual health services. 'We are seeing people coming out at an earlier age, so these safe spaces are essential,' Azzopardi Lane says. 'There are pre-pubescents or younger teenagers who require a safe space to come to terms with their identity and have a social transition that supports them.' Safety and acceptance facilitate openness and communication between the individual and the social systems around them.

CREATING A SAFE SPACE

Finding safe spaces allows people to flourish and evolve without fear of rejection or discrimination. However, the pivotal spaces within family, school, and community may not always be safe for gender and sexually diverse people. 'We are still reading research findings that look at the experiences of young people living within the family context: how they were not accepted, how hard they find it, and how some found themselves homeless,' Azzopardi Lane explains.

Annual reports from NGOs and research findings also document the lack of representation of LGBTQIA+ identities within education and the bullying that LGBTQIA+ youths experience within their schools. 'These are spaces where we have to keep investing in awareness-building and normalisation of sexual and gender diversity,' Azzopardi Lane believes. Normalising inclusivity can be as simple as asking someone their preferred name and pronouns or providing examples that represent gender and sexual diversity. By using inclusive language and increasing awareness of LGBTQIA+ realities, such as the experiences of trans, intersex, and non-binary identities, people can see that they are respected within their social contexts and feel safe to be themselves.

It's important to speak up about unsafe spaces and report hate crimes and hate speech; even subtle microaggressions should not be tolerated.

Creating safe spaces also means standing up against discrimination. 'It's important to speak up about unsafe spaces and report hate crimes and hate speech; even subtle microaggressions should not be tolerated,' Azzopardi Lane says. 'The Victim Support Agency's platform to report such occurrences is very accessible. People need to speak up and not hide anymore.' While Maltese legislation supports the visibility of LGBTQIA+ people, it is up to our entire community to create a safe space and speak out against discrimination within the school, the workplace, and locally. Azzopardi Lane asserts that when we strive for inclusivity, society can cater to all and not make assumptions about people's abilities, realities, or identities. 'This helps us create opportunities and services for all people and bring awareness to misconceptions about what people need to feel safe and supported,' she says.

When people feel their identities are accepted and included by their social systems, there is a greater willingness to access available resources, such as mental health support and sexual health services. With Malta reporting high incidents of STIs like gonorrhoea, chlamydia, and HPV, the need to prioritise education and awareness for safe sex practices, such as regular testing and using contraception during sexual encounters, has never been more important. Non-judgemental and inclusive spaces that encourage awareness of safe sex practices instead of treating them as taboo encourage the wider community to be open about and take care of their sexual health needs.

SAFE SPACES IN MALTA

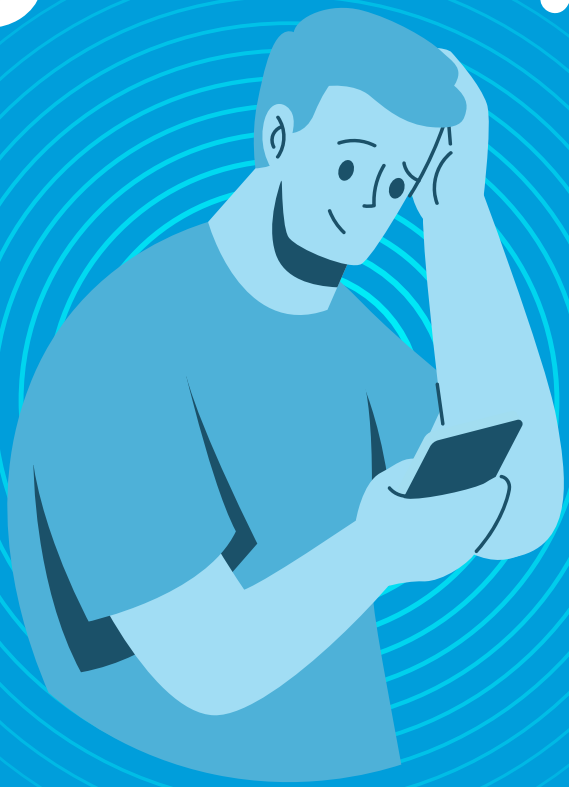
Despite the challenges LGBTQIA+ people face, safe spaces are steadily emerging from various sectors of Maltese society, providing a strong platform of support for gender and sexually diverse people. In schools, guidance counsellors and teachers are becoming more aware of LGBTQIA+ realities and how to support questioning students. Non-government organisations, such as MGRM, ARC, LGBTI+ Gozo, Drachma LGBTI, and Drachma Parents, provide visibility, awareness, and inclusive spaces that help gender and sexually diverse people find their community and encourage them to explore who they are without judgement. Social services that cater to LGBTQIA+ realities, like the free counselling offered at Rainbow Support Service and free HIV and STI testing from entities like HIV Malta, Checkpoint Malta, and the GU clinic, provide informed and empathetic spaces to promote mental and sexual wellbeing. And, with the recent opening of Dar Qawsalla, LGBTQIA+ individuals now have safe and accessible community housing for those who find themselves homeless.

At the academic level, initiatives such as Mapping the Rainbow, which collects and condenses research focusing on LGBTQIA+ identities, help professionals better understand gender and sexually diverse realities and what people need within their community to feel safe. UM even offers a CPD course for academics that helps educators create a safe space that is inclusive of gender and sexual diversity. While we must always continue to strive for a diverse and inclusive society, the Maltese community has the tools and resources it needs to get there and truly become a safe space for all people.

Further Reading

Azzopardi Lane, C., Naudi, M., & Harwood, M. (2021). *Mapping the Rainbow: Researching the diverse colours of the LGBTIQ community: Vol. II*. MFER. https://humanrights.gov.mt/en/Documents/Mapping%20the%20Rainbow%20Vol%20II.pdf

A Safe Space



Breaking the Stigma Around Mental Health Interventions

Author: **Christian Keszthelyi**

Our collective mental health has been at peril lately due to the global calamities of the past half-decade, including wars, the pandemic, climate change, and economic uncertainty. ***SafeSpace (GħallKenn)*** *is an open-access, mobile-based, free digital application that aims to raise awareness of the dire need to look after our mental health and offers tools to support our journey.*

As humanity shifted back to new normalcy after shedding the months of compulsory home isolation, mental health issues were exacerbated due to sitting before screens to meet our friends and colleagues.

'One of the things that has definitely increased is attention deficit and hyperactivity symptoms,' says Dr Mary Joan Camilleri, Head of Counselling Services at UM. Recently, screening tests have been conducted for ADHD in the Maltese social fabric, and data confirms that cases have grown since the pandemic. 'If the older generation is suffering from anxiety, the younger generation has taken the anxiety level further. But attention deficit and hyperactivity can also be symptomatic of post-traumatic stress (not PTSD),' Camilleri says.

Post-traumatic stress and attention deficit and hyperactivity manifest similar symptoms. Often, people are not consciously aware of what their feelings actually mean. 'If I'm happy, my heart beats faster; if I'm anxious, my heart also beats faster. Then I, as a human being, have to interpret whether I'm happy or anxious,' Camilleri tells **THINK**. Similarly, symptoms like forgetfulness and lack of concentration can be an offshoot of attention deficit hyperactivity, but also post-traumatic stress.

'If someone gets a high score on an Attention Deficit Hyperactivity Disorder (ADHD) test, the first thing we need to understand is whether the attention deficit hyperactivity symptoms are due to ADHD or post-traumatic stress. And COVID is likely to have left post-traumatic stress in many of us,' Camilleri adds.

ENTER SAFESPACE

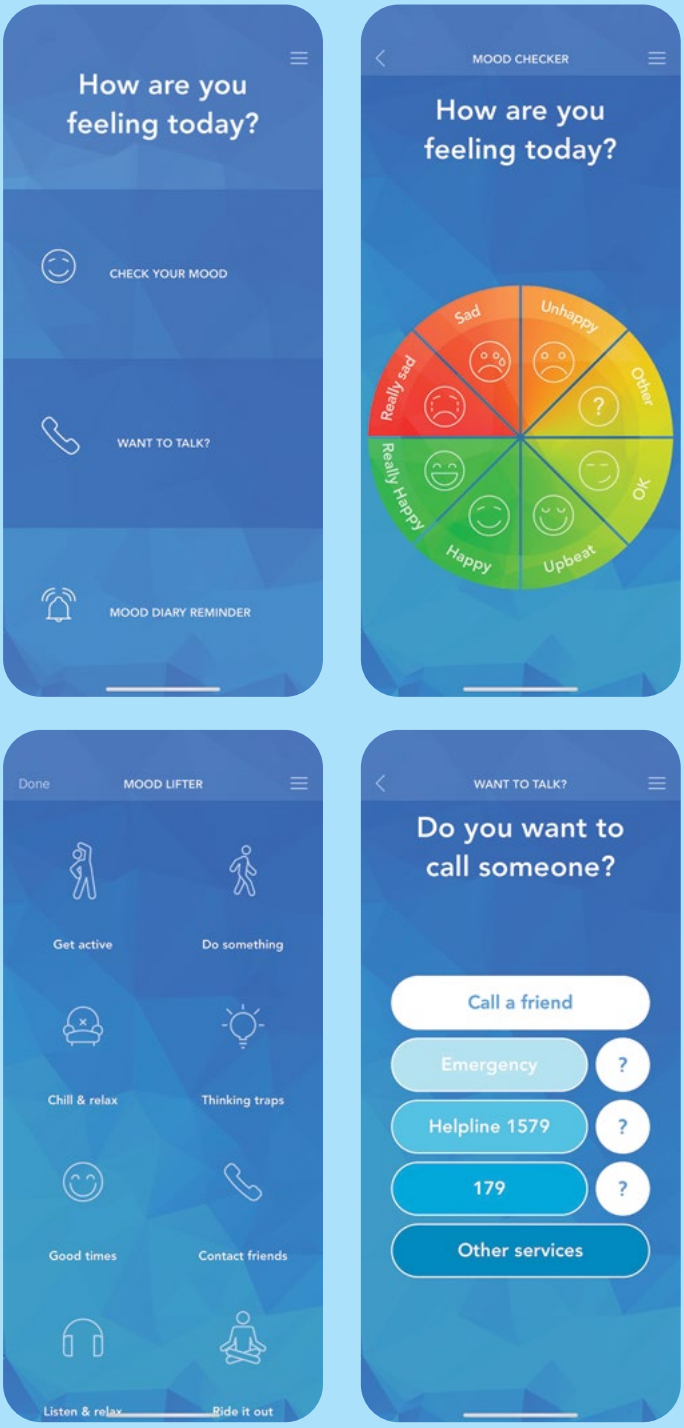
SafeSpace (GħallKenn) emerged in 2022 as a tool to support mental health and prevent self-harm and suicide in young people in Malta within this fickle mental health environment. The Centre for Resilience and Socio-Emotional Health at UM and the Malta Foundation for the Wellbeing of Society brought mental health professionals together to develop a potential tool to support youth's mental health and wellbeing.

Prof. Alexiei Dingli (Department of AI, Faculty of ICT), who supported the project with his digital expertise, also noted that the pandemic left a lasting effect, especially on the youth. 'I feel the SafeSpace mobile app is essential for nurturing overall wellbeing in Malta as it's targeting a population that's extremely vulnerable: teenagers and young adults,' says Dingli. 'Considering this environment was also where youths' mental health received a heavy blow, the SafeSpace app was introduced at the right time. It does what the name implies: provides a safe space. That's why we named it *GħallKenn* in Maltese; it's a place where you're protected and sheltered,' Dingli tells **THINK**.

People under 25 are digital natives, so the most obvious approach was to create a digital resource that's always in their pockets. 'We thought creating an app would be a useful tool where the youth in Malta can access information right at their fingertips on how to regulate their emotions, enhance their mood, and seek professional help. We looked around to see what was available, and that's how we found a UK-developed digital tool, BlueIce, whose software provides the foundation to SafeSpace,' says Prof. Carmel Cefai, professor of Psychology and Director of the Centre for Resilience and Socio-Emotional Health.

The project team licensed BlueIce's platform, developed by MyOxygen in collaboration with the University

SafeSpace app screenshots showing the main home screen, mood checker, mood lifter, and contact screen



of Bath and the Oxford Health NHS Foundation Trust in the UK, and adapted it linguistically and culturally to fit the expectations and needs of youth in Malta.

'Once the app was ready, we piloted it with young people in Malta to ensure the content was accessible and culturally appropriate. Later, we carried out a risk assessment exercise with both clinical and non-clinical groups to ensure the app carried no potential risks to the users,' Cefai adds.

SafeSpace allows users to monitor their thoughts and moods using a digital journal. It also helps users with tips on regulating their feelings and reducing distress through a personalised toolbox. The digital tool also brings users' attention to local support services available for young people seeking help when in distress, such as emergency services, the new Helpline 1579, Support Line 179, and Kellimni.com.

THE STIGMA IS PRESENT

Unfortunately, public opinion still stigmatises mental illness and seeking help from mental health professionals. 'The stigma is the biggest problem in improving mental health issues. That's why the SafeSpace app is completely anonymous – it doesn't collect information about users. But stigma is an issue, and we must work on overcoming it. We have to speak about it more,' Dingli adds.

SafeSpace is a great tool if we know how to use it. To learn how to benefit from mood charting and similar tools, we must openly speak about mental health issues and break the stigma.

Gandhi once said, 'Be the change you want to see in the world.' Your columnist suffers from anxiety and

resorted to severe nail biting from early childhood to cope with stress. But after starting therapy three years ago at the age of 33, a lifelong self-harming exercise was curbed and remains at bay today. Mind you, in stressful situations, the urge is there. It is always there. But it is fine – regularly seeing a therapist is the key to dealing with our issues. Just as our teeth benefit from annual check-ups, our mental health yearns for regularly scheduled therapy so we can talk it all out and better understand the chaotic world around – and inside – us.

RAISING AWARENESS TO BREAK THE STIGMA

SafeSpace is contributing to raising awareness of mental health by making it easier to seek help when necessary. Since the mobile app launched, mental health professionals in Malta are increasingly using it in their sessions, helping patients track their moods and better understand themselves.

'The mood charting and the mindfulness part of the app are very useful – these are tools people can use on the preventative level,' Camilleri says. We rarely speak about our emotions, and as a result, we might feel a certain way but not understand why. Mood tracking and journaling can help.

Benjamin Franklin journalled twice daily: in the morning and in the evening. He was reflective and strategic about his self-development, meticulously recording his progress. He is known as a pioneer in the art of introspection. But today, in a world where digital noise sweeps us off our feet with flashy videos, introspection is a skill that we need to learn.

'Benjamin Franklin was self-aware, self-disciplined – he thought about being a good man. But we can't expect a young person to be that mindful today if we haven't taught them critical self-reflexivity. They'll feel stressed and pressured. They've never been asked to self-manage because the message has been: be a good girl; be a good boy. Why on earth would they want to be aware of their feelings, especially if those feelings are negative?' Camilleri says.

Digital tools such as SafeSpace can help us introspect, and the tool has the potential to improve further. But what needs to be done?

'First of all, we would like to raise awareness about the app so more young people start using it as a self-help tool to take care of their mental health and seek help when needed. Secondly, we would like to see the app used more in mental health services for young people as part of the interventions for the clients. The University Counselling Services are already seeking to make use of the app with its clients and integrate it within the university support systems,' Cefai says.

'Thirdly, we would like to research how we can enhance its use and, more importantly, evaluate its effectiveness in improving mental health and wellbeing; this is the next project we have in mind.' Finally, taking the app a step further, although it is primarily aimed at youth, Cefai notes that its mood tracking, self-help interventions, and referral to appropriate help services are perfectly suitable for adults. However, the app would need to be adapted to an adult audience.

'The app is based on evidence-based psychological interventions and has been developed with the young people themselves. We piloted and tested it with youth. It is freely accessible to young people on their mobiles. We hope it'll be embraced by a wider audience, so we can be a step forward on the road leading to higher self-awareness and emotional wellbeing and mental health, reducing stigma and encouraging young people to take care of their mental health and seek professional help when needed,' Cefai concludes. SafeSpace (GħallKenn) is available free of charge on iOS and Android phones in both English and Maltese.

If you or someone in your environment is struggling with mental health issues or experiencing thoughts of suicide, take action! Reach out to trained professionals for support and guidance. If you need help, call Support Line 179 or visit kellimni.com.

Download the SafeSpace (GħallKenn) app here:

Download on the App Store

A Robot to Protect Your Home

Author: **Jonathan Firbank**

Engineers at the University of Malta are developing a robot to protect your personal space. ***Dr Ing. Marvin Bugeja*** *speaks with* ***Jonathan Firbank*** *about a Bachelor of Engineering final year project: a sentry robot being developed by* ***Carsten Karl Grech***.

The future is now. The self-driving cars from *Total Recall* navigate busy streets. Trains have long been automated, as close to *Logan Run*'s sleek monorails as they are to the steam engines of old. And in the home, the little cleaning droids from *Star Wars* have escaped into the real world, gently vacuuming around furniture while fascinating family pets. Find a rich enough neighbourhood, and you'll discover their lawn-mowing cousins, diligently preventing their owners from having to touch grass.

These technologies are masterpieces of convenience. But convenience is not as important as security. *Robocop's* ED-209 wasn't an appealing depiction of automated security, but spare a thought for the robot in the dire 90s sci-fi-comedy, *Flubber*. It was a compact, adaptive, and responsive home sentry, complete with cameras for eyes and microphones for ears, less intrusive than a robot vacuum but with vastly superior utility. Mercifully, we no longer have to watch *Flubber* to see this tech in action, thanks to engineers at UM.

A UM student, Carsten Karl Grech, is developing a robot under the tutelage of Dr Ing. Marvin Bugeja. Beyond detecting home intrusion, it can detect fire and gas. It can also be remote-controlled to surveil for the many other things that threaten our personal spaces, whether they be as minor as leaving a window open or as dangerous as leaving the stove on.

ENGINEERING THE FUTURE

Bugeja is a senior lecturer at UM's Department of Systems and Control Engineering, an expert in control systems engineering and robotics. He is overseeing Grech's final year project for the Bachelor of Engineering degree. The project is firmly in its final stage, with a working prototype. As Bugeja explains, 'Engineering students select a project with practical and experimental components, implementing skills learned directly from the course or even from additional personal research. Projects are either suggested by students or, more commonly, proposed by supervisors, being tailored to students' interests either way.' Grech's interests formed the right 'spread of components' that this project demanded, extending through engineering theory and practice to more multidisciplinary factors – 'not just robotics but electronics, communications, and web development.'

Bugeja remarks that, 'the idea originated through observing cleaning robots', those *Star-Wars*-esque

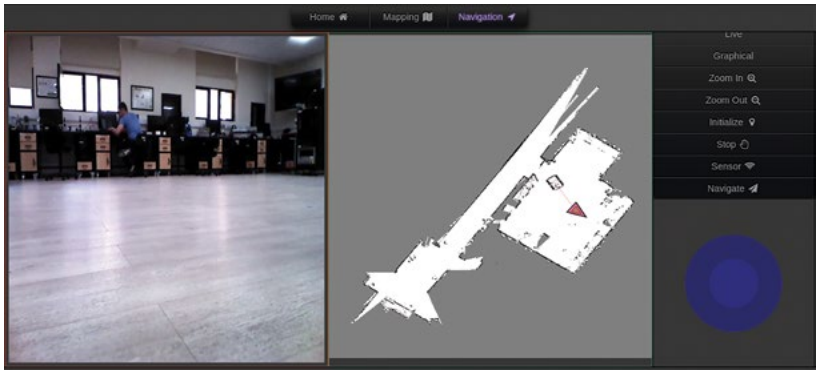
The sentry robot navigating obstacles autonomously.

Rosbot 2 PRO: The mobile platform turned into a sentry robot.

roombas. 'These robots park themselves in a place at home then, when called upon, they can clean a room, having learned a map of the house. They do this autonomously,' Bugeja says. Another staple of smarter homes are security cameras. 'Wouldn't it be nice to have a camera on a similarly autonomous robot? Modern security systems, whether personal or commercial, consist of cameras and sensors fixed around the environment. The problem with this is that they have blind spots and buying multiple cameras is costly.'

This robot, on the other hand, does not need to be duplicated to adequately surveil a house, instead mapping the home then travelling to points of concern automatically or by remote control. Conventional security cameras are often more preventative than reactive; they tend to be placed at elevation, meaning that an intruder can avoid them or simply hide their face with a baseball cap. Their limited reactivity also means they have limited functionality when it comes to more common risks to our personal space. Bugeja recalls being overseas at a conference, wondering if he'd left a window open at home. 'Wouldn't it be nice if you could just use your mobile phone to send a robot to check?' This phone integration represented the biggest challenge of the project.

Bugeja and Grech are 'comfortable working with control systems, automated machines and robotics. But to develop a system like this, you need to develop an application that can observe and control the robot,' incorporating aspects of IT



Right: Realistic simulations in a virtual environment.

Top: The developed GUI showing: the robot's camera view, the robot-generated map, and the robot's controls.

Photos courtesy of Dr Ing. Marvin Bugeja

as well. This hurdle was crossed, and the robot is now controllable from 'any mobile device, anywhere in the world'.

MORE THAN A CAMERA

A key idea developed during the project was the installation of fixed sensors in each room of a housing unit, capable of detecting motion, noise, gas, and fire. The robot would inspect spaces where an alarm had been triggered, sending a notification to the owner's phone, where they could then see through the robot's eyes via video. This has broadened its utility by magnitudes, conveying sensory information that security cameras, with their blind spots and visual-only surveillance, simply can't. The project has room to grow even further. The fact that the robot is a mobile, physical part of the home means that this utility can be scaled up once more by giving it the ability to interact as well as observe. This would thrust it into a role long explored by science fiction. 'You never have an idea which is wholly your own,' continues Bugeja. 'An ultimate, futuristic goal has been to have a mechanical servant at home. For now, we've put a camera on the servant's head. But in the future, we could give it a robotic arm.' Returning to the example of the open window, 'it could not only show you it's open, the robot would close it for you.' Another multiplicative feature suggested by Bugeja would be image processing: the ability for the robot to not only convey information but interpret it. For example, it might visually identify an open flame in addition to responding to a fire alarm, greatly increasing the precision of its threat detection.

Our homes are increasingly interconnected and remote-controlled. Our electronics can respond to voice commands; our utilities can be controlled via apps. This sentry robot has the potential to integrate perfectly with these smart homes, a physical extension of our increasingly intelligent personal space. And should it be sold to the public, the barrier to entry does not need to be high. Extensive market research is, understandably, not an important part of an undergraduate engineering degree project. But do a little online shopping, and you'll spot a gap in the market exactly where this robot would sit.

At the cheap end, there are barely functional novelty items accruing negative reviews on Amazon. At the high end, there are bulky, all-terrain automatons that would look more appropriate on the surface of Mars than in the living room. The middle ground – a quality, integrated device that saves money instead of burning it – is tantalisingly uncontested. Grech's project would occupy this niche, a fact that's demonstrated by how its parts were sourced.

The robot is built from a commercially available robot designed for academic research. The model has been heavily adapted and paired with the in-house app and sensors. It is affordable and, pleasingly, looks more like Wall-E than ED-209 – two things that could catch consumers' eyes. But perhaps its biggest selling point is its sci-fi heritage.

The idea of robot servants has fascinated us for over a century – over a millennia, in fact, if we include mythological automata. Thanks to engineering researchers like Bugeja and Grech, these ideas are spilling into reality. It seems likely that, very soon, a robot guarding our personal space will become a perfectly normal part of our lives. We don't often see the stuff of myth and movies becoming real. Let's enjoy the show.

A CULTURE OF CONSTRUCTION AND WELLBEING IN GOZO

Author: **Catherine Camilleri**

Malta has been taken over by construction, and Gozo is quickly following suit, with more and more new buildings popping up around the once idyllic countryside. A recent study from the Faculty for Social Wellbeing highlights just how much Gozitan quality of life has suffered under the new status quo and what needs to be done to save Gozo's green spaces.

The cluttered skyline of the Church of St John the Baptist (Xewkija Rotunda) in Xewkija
Photo by Kristov Scicluna

A view of the Ċittadella, Victoria
Photo by Kristov Scicluna

With open, rocky fields, a winding coastline, and comfortable nostalgia nestled in the old limestone houses, Gozo has always been seen and marketed as a place preserved in time. While Malta has lost much of its green space to rampant construction and expansion, Gozo has, for the most part, preserved its natural beauty. Its open terrain and quiet atmosphere are some of its main attractions, bringing in those who seek a respite from the urban sprawl. However, Gozitans have come to realise that the landscape of their island is rapidly changing, and the sounds of nature are being drowned out by the screech of cranes and diggers as new buildings are erected faster than the island can sustain.

A new study commissioned by the Environment and Resources Authority (ERA) and conducted by the Faculty for Social Wellbeing has unveiled just how much these changes have impacted Gozitan quality of life and how Gozitans perceive construction as a detriment to their wellbeing that is destroying the livability of Gozo. Faculty Dean Prof. Andrew Azzopardi and the study's leading researchers, Dr Mary Grace Vella and Ms Graziella Vella, sat down with **THINK** to highlight how over-construction impacts our personal space and what needs to change to maintain Gozo's natural integrity.

COLLECTING THE SOCIAL PERSPECTIVE

The study emerged from ERA's desire to review its policy and match its vision and strategy with the needs of the Maltese community. It will be used in relation to the updated State of the Environment Report by 2025, the implementation of the National Strategy for the Environment to 2050, and ongoing projects for open and green spaces. 'The research was basically on wellbeing and what makes wellbeing – environmentally, socially, and economically – so it was very much in line with the mission and vision of the faculty,' Dr Vella explains. With an ethos that values the power of knowledge, Azzopardi says, 'I have always dreamt that this country does not act in a knee-jerk reaction anymore when it comes to developing policy, strategy, or services. Our idea was to provide local entities with solid, empirical, evidence-based, scientific data which they can use before building legislation and services.'

Armed with the desire to capture the social perspective, the researchers set out to collect their data. To pull off a representative sample of how the general population feels about the environmental changes happening to their country, they used a mix of qualitative and quantitative data collection tools, from interviewing people in various localities around Malta and Gozo to conducting focus groups and even launching a nationwide survey. What emerged was a comprehensive look at how people's lives have changed as a result of losing green spaces and how people have adapted to this new way of living.

WHAT ARE GOZITANS SAYING ABOUT CONSTRUCTION?

This study took the temperature of civil society's view on over-construction and loss of green spaces, and the voice of the people rang loud and clear. 'The study has captured, in a more academic way, what the people out there are saying: Enough is enough. We don't

Poor visibility of Tas-Salvatur Hill (Tal-Merżuq Hill) near Marsalforn
Photo by Kristov Scicluna

want to live in polluted areas. We don't want our lives to be determined by over-construction. We don't want to wait hours in traffic to go to work,' Dr Vella vehemently expresses. The study illustrated what people and environmental activists have been saying for a while: over-construction negatively impacts the individual's everyday life and even our social connections and relationships with the people around us.

People are no longer surrounded by natural spaces but are suffocated beneath busy construction sites and towering apartment buildings. Traffic jams pack the island's narrow roads, pollution grows as more and more cars fill the island, and the safe green spaces children once played in have been lost to new buildings. With both qualitative and quantitative research tools, the study revealed that in Gozo, high levels of dissatisfaction were reported in connection with this culture of construction.

Gozitans already face challenges in accessing resources, services, and opportunities, so the issues that have emerged from over-construction, such as congestion, pollution, and the loss of green spaces, add an extra layer of disillusionment to Gozitan quality of life. 'It's an added factor, and it makes life even more challenging because of the traffic and hours of commuting daily or weekly and coming back to a locality that is becoming more and more similar to Malta in terms of density, traffic, cost reduction, and buildings,' Ms Vella states. These burdens have greatly impacted the physical and mental wellbeing of Gozitans and have changed the character of the island. 'It's almost blasphemous,' Azzopardi professes, 'when you are literally uprooting what makes Gozo Gozo: the rural villages, the greenery around them, the ability to live in Gozo. This has been taken away, apart from being immoral and unethical.'

Beyond over-construction changing the traditional character of Gozo, the study found that the community ties that once bound people together are becoming undone. 'This is not the Gozo that we know; it's changed so quickly and probably at a quicker rate than Malta itself,' Ms Vella says. Localities no longer look or feel as they once did, and the connections people had to their local communities have dissipated. Friendships between neighbours dissolve when substandard building regulations put people at odds with each other, and distrust builds when the community places more value on status and wealth than the wellbeing of its people.

'There is a culture that has grown on us, that what matters is how much money we have, how much estate we have, and how much status we have,' Azzopardi says. 'We seem to be drawn by the Pied Piper of this false Maltese dream of making money.' Buying land in Gozo is cheap, and it's not just developers who want to cash in on high demand; many Maltese have benefited from generational wealth, being left land in Gozo by parents and grandparents. This inherited wealth is undoubtedly appealing, and the commerce that comes with population growth and the tourism boom has hyped the desire to cash in on Gozo's green spaces. But as the study has shown, there are consequences to the rush of overbuilding, and the Gozitan community has been influenced by the changes within its traditions, culture, and atmosphere.

A stark divide has appeared within the community. Limited sanctioning and regulations from governing bodies has allowed developers to step over the line. Society's rampant drive to capitalise on Gozo's natural wealth has nourished this culture of construction. People want to boost their economic

A pedestrian-level shot of Republic Street, Victoria
Photo by Kristov Scicluna

and social status, and understandably so; we live in an expensive world. Yet at the same time, people must contend with the loss of Gozo's idyllic countryside and, with it, the sense of community and belonging.

PAVING A GREENER WAY FORWARD

Azzopardi, Dr Vella, and Ms Vella agree that there is only one way to put an end to the divide construction has caused within our national space. A line must be drawn in the sand that prohibits illegal and unregulated construction and puts an end to the culture of overbuilding that has run wild in our country. 'In my personal opinion, there should be a total moratorium on new buildings on our island,' Dr Vella says, 'We already have enough buildings.' Azzopardi agrees with this and continues that the only construction that should be allowed is that which supports local heritage and allows older buildings to be restored to their original design.

The Dean also believes that we need to have more conversations about the dependency of our economy on the construction industry. 'The construction industry has made our economy so dependent on it,' he says, 'so we need to start thinking about alternative routes and ideas on how to develop our economy. We need to diversify our services to make up for it. It's a complicated issue, but there is no conversation about it. We only talk about it for a day when someone dies on a construction site, and then that's it.' These discussions need to become ingrained within our governing systems to sanction unnecessary and unsafe construction and monitor how much developers, stakeholders, and private landowners are building on our island. We have to begin moving away from a culture of status and build a renewed appreciation of our open green spaces, making them more available and accessible for people to recharge and get back to nature.

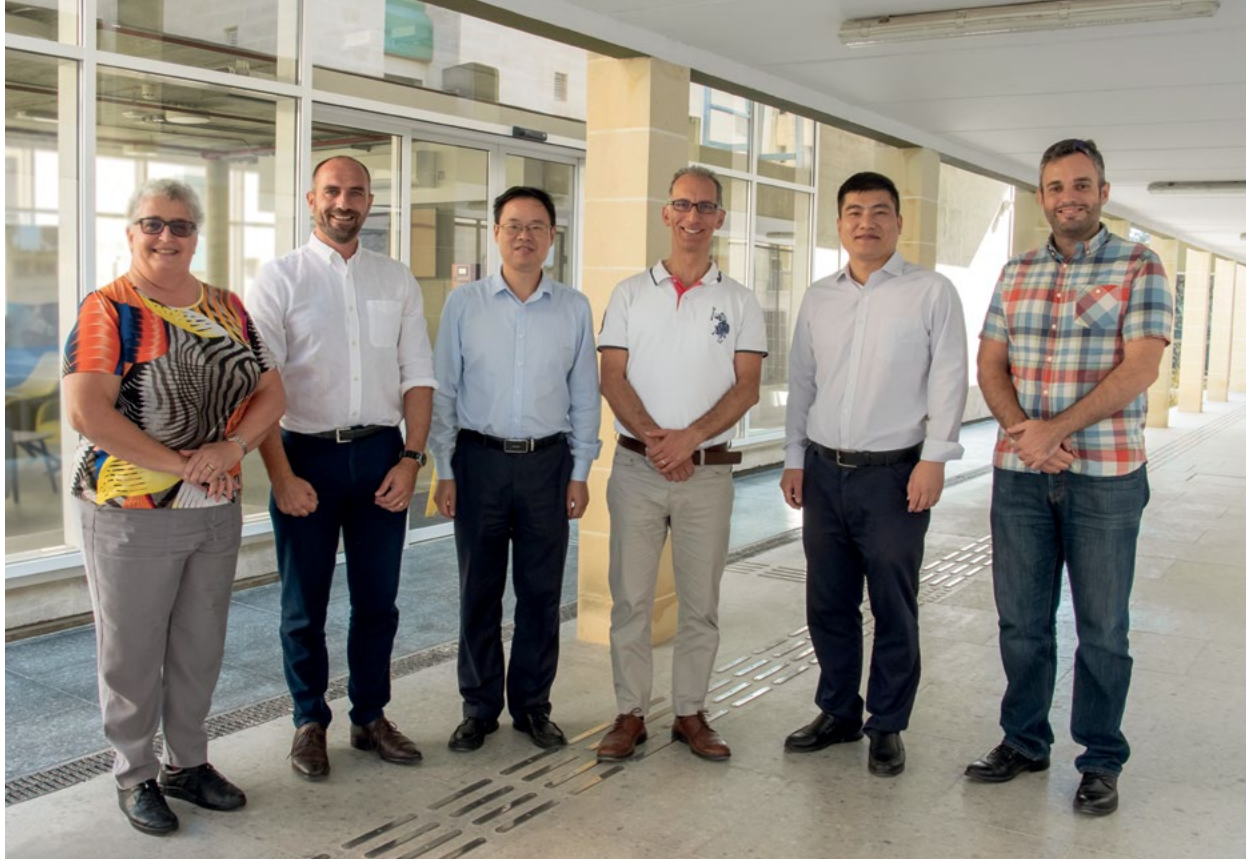
While the study revealed how construction is severing individuals' ties to the community, Maltese locals and Gozitans are still hopeful that these connections can be renewed. 'People still have an affinity to their locality, despite everything. They want their locality to be better. They still feel this sense of connection to their community. The social connections and closeness to family and community are still there,' Ms Vella says. More and more people are standing up and speaking out about over-construction and the negative impact it is having on their lives and on Maltese culture. And with more visibility and voice added to the conversation, society has the opportunity to undo the damage over-construction has caused. When people become active about the issues that impact their lives, it demonstrates to others that community matters, and when there is value in belonging, people care more about their social spaces.

'Community doesn't just happen,' Azzopardi asserts. 'Community has to be developed. It doesn't just fall from the sky. And the way we are living our lives, completely immersed in making money, leaves very little time for consideration towards other people.' This means putting more value on connections and community, showing kindness and compassion to the people around us, and seeing our national space as an extension of our personal space. Our national spaces become safer, cleaner, greener, and more accessible for all people when we put the emphasis back on society's wellbeing rather than individual or national wealth. T

Pioneering Natural Composites for Net Zero Emissions

Author: **Antónia Ribeiro**

*Fighting climate change requires systemic approaches that tackle the whole life cycle of a product. Composites are used across industries to produce robust, lightweight, and resistant materials, but their production uses fossil fuels, and the final product is non-recyclable and hazardous to the environment. In a joint effort, through the project Ecological Natural Fibre Reinforced Composites – **ECO-Composite** – the UM and Zhejiang Sci-Tech University, China, are exploring the development of biodegradable alternatives to typical synthetic composites.*



ECO-Composite project investigators meeting at UM.
From left to right: Prof. Ing. Claire DeMarco, Prof. Ing. Duncan Camilleri, Prof. Zhenyu Wu, Prof. Ing. Martin Muscat, Prof. Hongjun Li, Dr Brian Ellul
Not present: Prof. Emmanuel Sinagra, Prof. Xiangdong Liu
Photo by James Moffett

The European Climate Law aims to mitigate global warming by ensuring that, by 2030, the European Union's member states reduce their carbon emissions by no less than 55% in comparison with 1990 levels and that by 2050, these emissions reach net zero. To achieve this goal and protect the planet from the consequences of the climate crisis, we need to rethink many of the systems and processes that keep our society running. One such effective strategy is to tackle the carbon footprint of a product's life cycle. Through individual and local governmental efforts, more reusable and recyclable products can be developed and used to reduce the production of waste.

When thinking about recycling, you may first turn to individual approaches: preferring reusable bags, recycling packages, buying second-hand clothes... However, it is also important to consider recycling on a larger industrial scale. For example, in 2020, carbon emissions in the transportation sector amounted to 24% of the world's energy-related emissions. While these emissions reflect the energy needed to power a car, not to produce it, many of these emissions would still be decreased by using lighter, recycled materials.

Transport industries, including automotive, aerospace, and even marine, rely on materials called composites that are a combination of fibres (such as carbon or glass fibres) and synthetic resins that are typically petroleum-based. Composites have revolutionised the world of industry and manufacturing due to their durability, lightness, and ability to withstand strong forces. Composites can also be produced to optimise and endure different functions and environments.

Prof. Ing. Duncan Camilleri, principal investigator of the project ECO-Composite from the Department of Mechanical Engineering at UM, explains to THINK that composites offer a high strength-to-weight ratio, meaning that with the right recipe of fibres and resin, the desired characteristics can be achieved more efficiently than with conventional materials. For example, placing fibres parallel to the direction of a force in a resin capable of encapsulating, protecting, and transferring loads between the fibre strands can allow the composite material to withstand larger forces than other materials. For each application, the composite components are chosen according to their 'strength, flexibility, rigidity, and potential' and are combined to make for a suitable advanced composite material with minimal weight.

***Agave sisalana* in its natural habitat**
Image courtesy of ECO-Composite project

Sisal fibres extraction and processing
Photo by James Moffett

Still, despite such effectiveness, composites are not exactly helping us reach the carbon emission goals intended to stop the climate crisis. Most of the constituent materials (both the fibres and the resins) are derived from fossil fuels or require a high energy input to manufacture, resulting in high carbon emissions. Furthermore, synthetic composites are very hard to recycle and often end up incinerated or in landfills. When produced or incinerated, composites emit greenhouse gases, and in landfills, they occupy a lot of space (already scarce) and take years to decompose. In the process, they leach dangerous chemicals that contaminate soil and water, with synthetic resins being generally hazardous and even carcinogenic. Even if current composites are recycled, the process is not very efficient and, as Camilleri explains, requires a lot of energy.

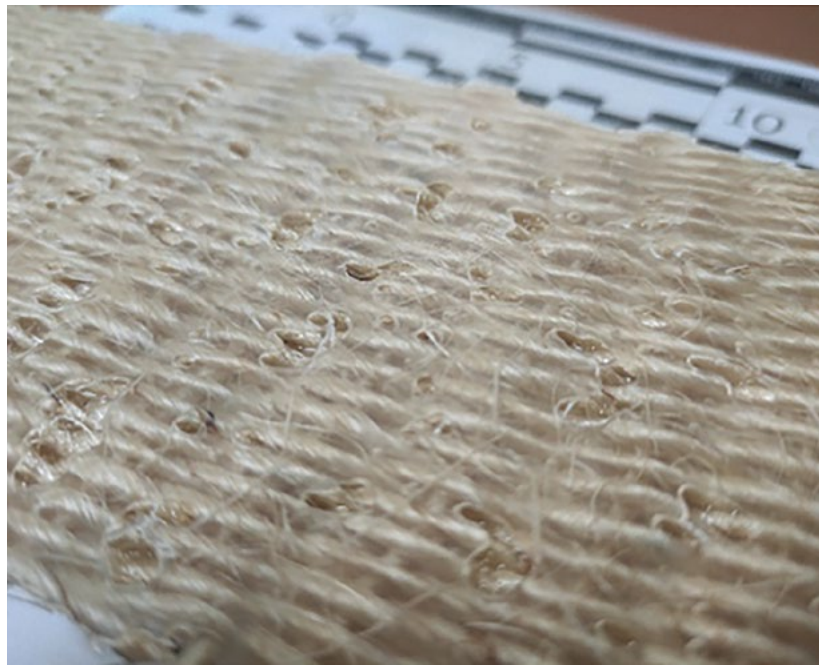
Luckily, a joint effort between the research teams at the Department of Mechanical Engineering (Faculty of Engineering) and the Department of Chemistry (Faculty of Science) at UM and the Faculty of Mechanical Engineering and Automation at Zhejiang Sci-Tech University, China is exploring the development of biodegradable composites. Specifically, the team is looking to develop composites reinforced with ecological natural fibre, or what they call eco-composites.

To do so, they have split efforts to create sustainable versions of the two components in composites. While UM focuses on developing plant-based fibres, the Zhejiang Sci-Tech University, China is looking at bio-resins.

According to Camilleri, plant-based fibres require less energy to produce than synthetic fibres. The plants they are extracted from (like flax, hemp, or sisal) naturally absorb CO_2 from the atmosphere, which also reduces the carbon footprint of the manufacturing process. With such materials, the final eco-composite will be biodegradable and decompose more quickly without contaminating soil and water.

Although the biocomposite industry is growing, developing these solutions comes with its challenges. Camilleri points out that for the eco-composite to maintain its shape and strength, the resin and fibres developed need to bind to each other to keep the material intact and promote the transfer of load from one fibre to another. Natural fibres also need to maintain their original strength, flexibility, and rigidity throughout the life cycle of the eco-composite.

The UM researchers are looking into different plant-based fibres and testing their properties to find effective replacements for the synthetic fibres currently available. Camilleri mentions that there is limited research on the use of biodegradable fibres in composite materials. The team hopes to fill this gap by testing the performance of composites produced from flax and/or sisal fibres combined with the appropriate bio-resins.



Bio-based woven mat
Image courtesy of ECO-Composite project

Flax is already used in the industry. It's known to have good damping properties, and the relative ease of spinning and weaving it into mats makes it a favourite for biocomposites. It is, however, more expensive to produce, and its properties are still being studied.

Sisal, on the other hand, is not often seen in biocomposites since it is more difficult to spin into a yarn and develop a closely packed fibre mat. Camilleri's team was already working with fibre extracted from the *Agave sisalana* plant when they realised its potential to strengthen a biocomposite, possibly by combining it with other natural fibres.

Simultaneously, the team in China is trying to produce bio-resins that are compatible with these two fibres. Camilleri, who knew the lead researcher from China from his Ph.D. studies, reached out to develop the Ecological Natural Fibre Reinforced Composites, ECO-Composite project, gaining funding from the Malta Council for Science and Technology (MCST) and the Ministry for Science and Technology of the People's Republic of China (MOST), through the SINO-MALTA Fund 2022 (Science and Technology Cooperation).

Currently, the project is still trying to determine what new materials will result from this endeavour and what industries they may be applied to. It will all depend on how the different components work together and the ultimate properties of the final eco-composites. It seems, however, that natural fibres are not as strong as the synthetic composites already in use.

Camilleri used the automotive industry to explain this further: 'Vehicle parts are generally made of steel, but these can easily be replaced by composite materials. Load-carrying structural components need to be strong, so carbon fibre composites are usually employed. On the other hand, bumpers must absorb energy and reduce the impact force exerted on passengers, implying that materials with good damping and energy-absorbing characteristics are more applicable. Furthermore, the interior components, such as the vehicle's dashboard and door, need to be aesthetically pleasing and capable of reducing noise and vibration. Composites made from natural fibres have excellent damping properties and can therefore be used for these applications.'

Hopefully, in the future, we will see more and more natural-material-based composites available across industries, from fuel-efficient cars to durable furniture. Incorporated into a circular economy, they could become both profitable and sustainable alternatives to the polluting petroleum-based composites currently on the market. T

Harnessing Offshore Wind for Hydrogen Power

Author: **Sebastião Miranda**

A fossil-based economy has been driving our planet to its limits since the dawn of the Industrial Revolution. The finite and localised availability of fossil fuels has shaped continents and turned entire nations upside down. Moreover, the carbon dioxide emissions produced by using these fuels are bringing entire ecosystems to their knees. But how can we reduce emissions and avoid further impacts?

In the last few decades, our knowledge of renewable energies has greatly improved. We learned how to harness the wind, generate electricity with turbines, and capture the power of the sun with photovoltaic cells. But these technologies create a new challenge: how does one store this energy?

Electrochemical storage using batteries is one solution. However, besides being extremely hard to recycle, batteries also rely on the mining of rare elements, which devastates entire regions and damages their social tissues and nature, as seen in lithium mines from Chile to South Africa. But there are other energy storage solutions, some of which are particularly suited for use in an offshore environment (see Buhagiar & Sant, 2017).

The UM researchers (Oleksii Pirotti, Diane Scicluna, Robert N. Farrugia, Tonio Sant, and Daniel Buhagiar) behind the Hydro-pneumatic Energy Storage for Offshore Green Hydrogen Generation project, or HydroGenEration, are developing a concept system that uses offshore wind farms and integrated energy storage to produce decarbonised – or 'green' – hydrogen.

USING HYDROGEN FOR A MORE SUSTAINABLE FUTURE

Through the process of electrolysis, hydrogen can be produced in a relatively simple way by splitting water (H_2O) into oxygen (O_2) and hydrogen (H_2). When used as fuel, hydrogen does not emit carbon dioxide, which can make it attractive as an alternative energy source for tackling climate change and decarbonising our economy. However, the energy used to produce it must also be taken into account, because this can come from different sources, some of which may not be green. In fact, 95% of the hydrogen produced in the EU in 2023 was a result of the use of fossil fuels.

By contrast, green hydrogen, produced using renewable energy sources and resulting in no CO_2 emissions, is the key to a sustainable future. The HydroGenEration project focuses on using offshore wind turbines coupled with co-located energy storage to reduce the intermittency of renewable sources in the Central Mediterranean. Project HydroGenEration has also closely followed developments in local renewable energy policies by the Continental Shelf Department

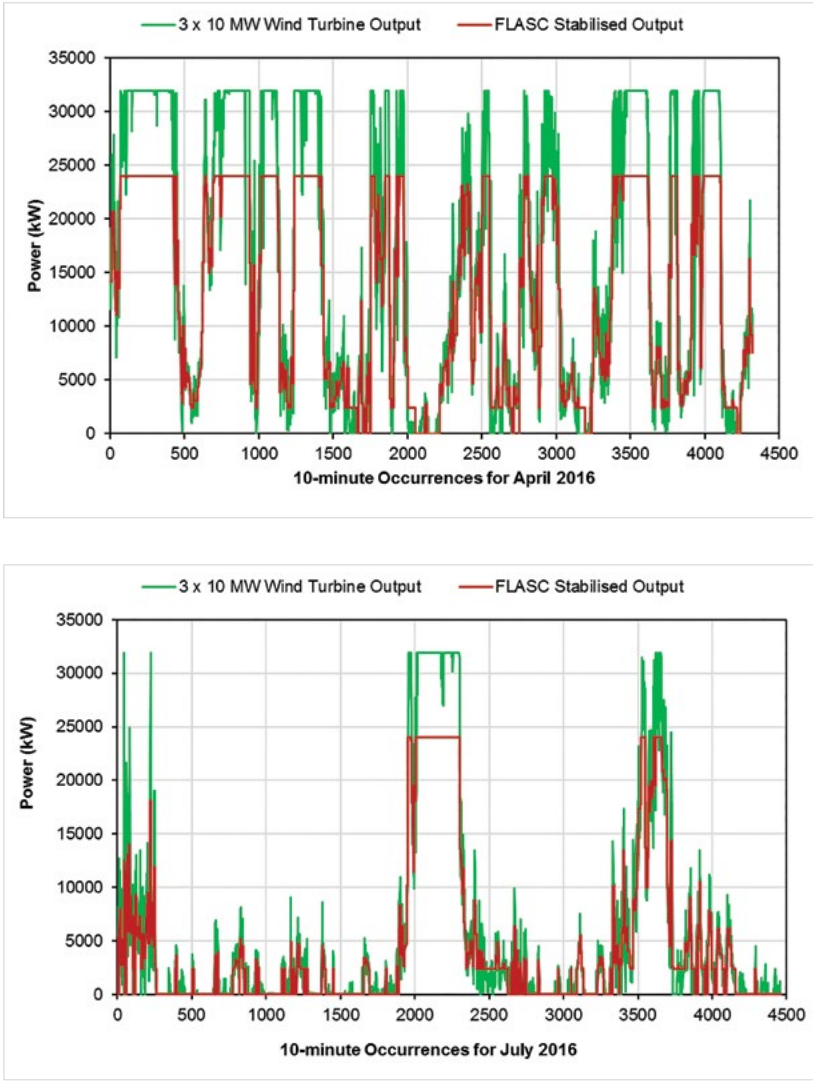


Figure 1: Power output from a three 10 MW wind turbine cluster (green) compared to the power output after being stabilised by the FLASC energy storage system (red) for the months of April (Top) and July (Bottom), for the year 2016

Images courtesy of the HydroGenEration Team

(Preliminary Market Consultation – For the Proposal of Economic Activities within Malta's Exclusive Economic Zone, 2022) and the Energy and Water Agency (EWA, National Policy for the Deployment of Offshore Renewable Energy – A Draft for Public Consultation, 2023).

PRODUCING GREEN HYDROGEN FOR MALTA

The use of renewable energies comes with its challenges. Infrastructure such as wind turbines and solar panels require swathes of land, and even though the wind is widely available in Malta, onshore space is scarce. This prompted the researchers to look to the sea, where there is ample space and the winds are even better quality. Offshore wind energy production is widespread in the North Sea as wind resources in that region are undeniably better. However, implementing this technology in the Mediterranean brings a new level of difficulty due to its comparatively deeper seas. As Sant puts it: 'To make it viable in the Mediterranean, floating wind turbines become necessary.' Floating platforms are already in use in the oil and gas industry, and the same kind of infrastructure is being adapted to deep-water floating offshore wind farms.

Another challenging problem is the irregularity of the wind. Sudden changes in its velocity result in a variable and unpredictable energy output from wind turbines. This can reduce the efficiency of the hydrogen production process and drastically impact the lifetime of the system's components.

This problem was overcome by using a Floating Liquid-piston Accumulator using Seawater under Compression (FLASC) system: an innovative energy storage technology developed in Malta by Daniel Buhagiar, Tonio Sant, and Robert N. Farrugia (check out **THINK** Issue 22). The FLASC hydro-pneumatic energy storage (HPES) technology compensates for the irregularity of the wind, or any fluctuating source for that matter, by storing the excess energy produced in moments of wind surplus and releasing that energy when there is less wind and hence less energy being produced.

Thanks to funding from the EWA, this team of investigators from UM, together with its preceding spin-out company, FLASC B.V., is building on the earlier work of the WIND4H2 project (see Settino et al., 2022). And by means of Project HydroGenEration, they are investigating the possibility of improving the hydrogen production process in the local context by stabilising the power produced by offshore wind farms through co-located HPES (see Pirotti et al., 2023).

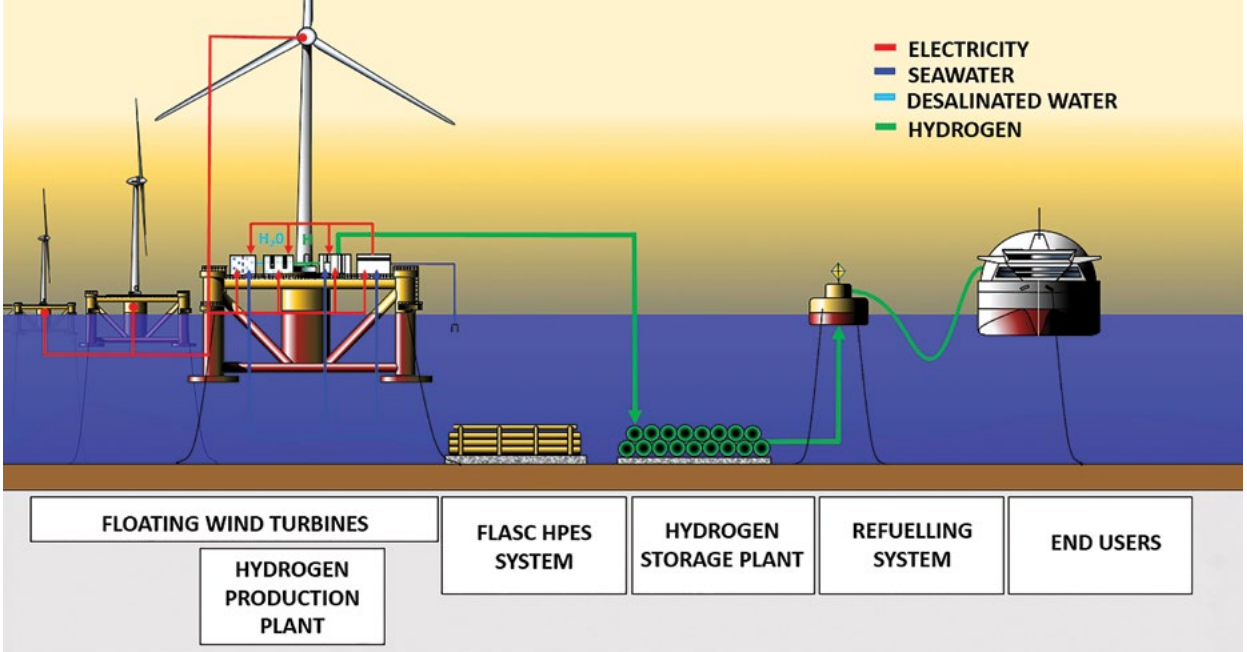


Figure 2: Artistic impression of the HydroGenEration project concept comprising offshore wind energy, electrical stabilisation by means of Hydro-pneumatic Energy Storage (FLASC), a hydrogen production plant with subsea hydrogen storage, and hydrogen refuelling infrastructure for transportation of the end-product or direct use by maritime end-users

Image courtesy of the HydroGenEration Team

AN OVERVIEW OF THE HYDROGENERATION CONCEPT

The HydroGenEration project used coastal LiDAR wind data collected by UM to model the behaviour of the concept HydroGenEration system. In Figure 1, the green line represents the fluctuations of the wind turbine power outputs with time for typically hotter and cooler months. These lines are marked by peaks and drops in the output power due to the highly variable wind behaviour. On the other hand, the red lines show how the use of the FLASC HPES system stores and dispatches the power and thus smoothens the renewable power outputs, delivering a more consistent amount of energy to the hydrogen production system.

Without energy storage, the power being fed to the hydrogen production system would be turned off and back on again more frequently, which would reduce the electrolyser's lifespan. As Farrugia explains, 'When you turn the electrolyser on after a shutdown due to an insufficient power supply, it will not be instantly up and running, as it has to ramp up to full capacity over several minutes,' making the HPES storage component one of the biggest innovations of the project concept. With the FLASC system in place, the power supplied to the electrolyser is considerably more stable – even when the winds are more irregular, such as in the Mediterranean region – resulting in fewer energy losses, 'more efficient hydrogen production, and an improvement in the lifecycle of the equipment which reduces the cost of the project,' states Pirotti.

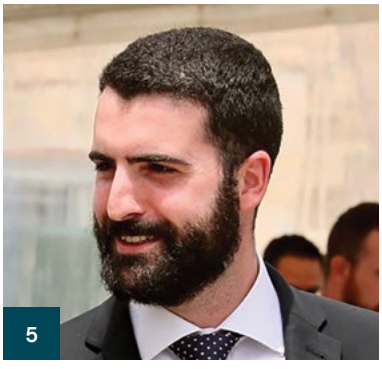
A visual representation of the HydroGenEration modular concept for the high seas can be seen in Figure 2, comprising floating wind turbines with a power rating of 10 Megawatts each to charge the FLASC energy storage system, which will be located partly on the floating platform and partly on the seabed. A steadier energy output from the FLASC HPES will then feed the water purification and electrolysis processes, leading to green hydrogen production. Since the platform is located at sea, water is widely available and only needs to be desalinated and purified to be turned into hydrogen. This all happens in the floating hydrogen production unit, which is located topside on the wind turbine floater. Following this, the hydrogen is compressed and stored in the subsea hydrogen storage array pending collection by an H_2 carrier or for the refuelling of seafaring vessels.

The maritime sector's big share of CO_2 emissions continues to grow. The shipping industry alone accounts for 3% of global emissions. There is an urge to decarbonise the sector, and HydroGenEration serves as a beacon of hope in the creation of a greener future. As the first H_2-powered boats are being tested, the potential for the use of hydrogen in decarbonising the maritime sector is promising. Since the HydroGenEration project stores the hydrogen produced on-site, such ships can refuel off-shore, becoming the end-users for the produced H_2. This eliminates the economic and environmental costs of transporting the fuel to land and can become a pivotal point in the future of shipping.

HydroGenEration has been ongoing since June 2022. In these

1. Dr Oleksii Pirotti
2. Ms Diane Scicluna
3. Prof. Ing. Robert N. Farrugia
4. Prof. Tonio Sant
5. Dr Daniel Buhagiar

Photos by James Moffett (Last photo courtesy of Dr Daniel Buhagiar)



past two years, different settings and combinations of equipment have been studied to zoom in on the ideal project concept. The latter stage will now focus on calculating the cost of hydrogen production using the conceptualised system.

The project 'Hydro Pneumatic Energy Storage for Offshore Green Hydrogen Generation – HydroGenEration', is financed by The Energy and Water Agency under Malta's National Strategy for Research and Innovation in Energy and Water (2021–2030), Grant Agreement Reference: EWA 64/22.

The wind data was collected by a Light Detection and Ranging (LiDAR) system purchased through the European Regional Development Fund for the setting up of a Solar Laboratory (ERDF 335), part-financed by the European Union.

The help and support of Din L-Art Ħelwa – National Trust of Malta, for hosting the LiDAR wind measurement equipment at the Qalet Marku Tower, Baħar iċ-Ċagħaq, Malta, is also acknowledged.

The project: Wind-driven Offshore Hydrogen Production with Electricity and Flow Stabilisation (WIND4H2) was supported through the Maritime Seed Award (MarSA) 2019: a joint initiative between Transport Malta (formerly Malta Marittima) and the University of Malta, supported by the TAKEOFF Business Incubator, within the Knowledge Transfer Office, and the Centre for Entrepreneurship and Business Incubation (CEBI) at the University of Malta.

The HydroGenEration project team acknowledges the support of the University of Malta's Project Support Office, the Corporate Research and Knowledge Transfer Office, and the Marketing, Communications and Alumni Office.

Further Reading:

Buhagiar, D., & Sant, T. (2017). Modelling of a novel hydro-pneumatic accumulator for large-scale offshore energy storage applications. *Journal of Energy Storage, 14(2)*, 283–294. https://doi.org/10.1016/j.est.2017.05.005

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ReTHINKing Malta's Independence at 60

WHERE WE ARE AT AND WHERE WE ARE HEADED

Author: **James Moffett**

Prime Minister Dr George Borg Olivier waves the Constitutional Instruments granting Malta independence after receiving them from the Duke of Edinburgh.

Source: University of Malta. (1964). *Souvenir: Malta Independence Celebrations: September 16–23, 1964*. Progress Press.

As Malta commemorates the 60th anniversary of its independence, **THINK** *delves deeper into the historical significance of this milestone to explore its lasting impact on the nation. Bringing together three prominent historians and scholars, we examine the island's journey by reflecting on their perspectives and analysing the challenges and opportunities that have shaped the country's trajectory.*

Malta's path to independence in 1964 marked a significant turning point in its history, ending over 150 years of British colonial rule. The period following independence was characterised by rapid socio-economic changes and a newfound sense of national identity.

Prof. John Chircop (Department of History), a leading historian specialising in Maltese history and British colonialism, emphasises the transformative nature of independence. He highlights Malta's economic successes, such as the development of key industries and infrastructure projects, which propelled Malta into a new era of prosperity. 'Independence started a process which brought about a radical change in the old socio-political alliance of the colonial state,' he notes, underscoring Malta's increase in standard of living and social mobility. 'On the international scene, Malta became a small, politically sovereign state,' after a long history of colonial rule by a non-regional power. Malta is, in fact, one of only two islands in the Mediterranean, along with Cyprus (which was also under British control), to have become independent states.'

Dr Charles Xuereb, a cultural historian, offers a contrasting perspective – pointing to the enduring legacy of mental colonisation. He argues that despite gaining political independence, Malta continues to grapple with the deeply ingrained psychological remnants of its colonial past. Public symbols, such as statues, monuments, and street names, reveal just how we perceive our national identity. 'Society does not seem to have decolonised mentally,' Xuereb laments, citing examples such as the erosion of the Maltese language and lingering British influence in various aspects of Maltese society.

Ms Simone Azzopardi (Department of History), while also pointing to the huge strides forward made since Independence, calls for a nuanced understanding of Malta's colonial legacy. 'Our mindset often reflects the servitude of a "colonised" people rather than of an autonomous state. It's as if we think our decisions and actions won't have a long-term bearing on our country, and that if things go wrong, we can blame it on someone else.' Azzopardi is swift to point out, however, that 'rather than a colonial mentality, what we are mainly suffering from is a servile mentality, especially manifested in systems of political cronyism and clientelism.'

LESSONS FOR YOUNGER GENERATIONS

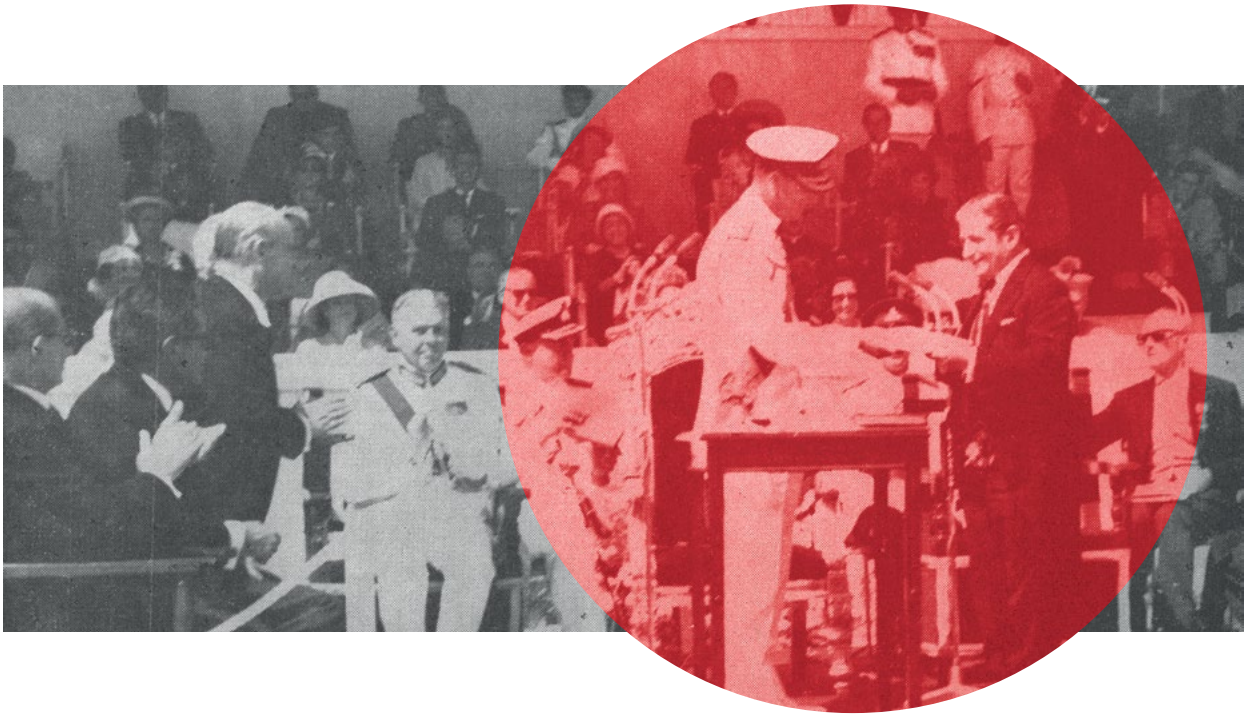
As the 60-year commemorations loom ahead, there is a growing need to impart the lessons of the past to younger generations. Chircop emphasises the importance of continuing to instil values of social justice, inclusion, and equality in the youth. 'Further progress needs to be driven by one ideal – that of the common good,' he asserts, urging young Maltese to actively engage in shaping the future of their country.

Xuereb, however, raises concerns about the perpetuation of colonial mentalities among the youth. 'Maltese

Opposite: Well-wishers bidding Prince Philip farewell at the airport after the celebrations. One woman holds the new flag of Malta.

Top: Triton Fountain during the Independence Day celebrations on 21 September 1964.

Source: University of Malta. (1964). *Souvenir: Malta Independence Celebrations: September 16–23, 1964*. Progress Press.



The precise moment constitutional power is transferred from His Royal Highness to Dr Borg Olivier.

Source: **University of Malta. (1964). *Souvenir: Malta Independence Celebrations: September 16–23, 1964*. Progress Press.**

youngsters today do not harbour a sense of belonging to their own country,' he observes, highlighting the challenges in forging a cohesive national identity in a rapidly changing world. Chircop adds that 'independence is a complex process which never ceases – needing to be maintained, often redirected, and adapted to the times, as the nation faces unstoppable challenges.'

Azzopardi applauds the increasing civic engagement among young Maltese but calls for critical reflection on the nation's history. 'Our national holidays should offer more than just a chance to celebrate,' she suggests. 'They're a reminder of the complexities of our national identity.' By encouraging dialogue and debate about Malta's past, present, and future, educators can empower the next generation to become active participants in shaping Malta's destiny.

THE IMPORTANCE OF NATIONAL HOLIDAYS

Emphasising the need for reflection and analysis, Azzopardi insists that 'while Independence Day is a moment to commemorate Malta's accomplishments, it should also serve as an occasion for critical reflection on its challenges and an evaluation of strategies to overcome them.' National holidays serve as poignant reminders of Malta's journey towards independence and sovereignty.

Meanwhile, Chircop views these occasions as opportunities to celebrate the diversity and plurality of voices and the contrasting social and cultural identities found in modern Maltese society. 'Let's take the opportunity presented by this 60th anniversary of independence to celebrate the diversity and the plurality of voices making up this nation,' he suggests. However, Xuereb warns against the politicisation of national holidays, urging for a more nuanced understanding of history. 'History should remain the subject of continuous debate, research, and revision,' he argues, emphasising the importance of preserving historical accuracy and integrity. He lauds members of the Maltese House of Representatives, when in 1989, they

The Duke of Edinburgh and Dr Borg Olivier stand below the tablet commemorating Malta's Independence, which the Duke had just unveiled on the Palace wall. The tablet says: 'The Maltese people rejoice at the gaining of Independence by these Islands today, the 21st September 1964.'

***Source:* University of Malta. (1964). *Souvenir: Malta Independence Celebrations: September 16–23, 1964*. Progress Press.**

all agreed to install five national holidays, memorialising historical severance with the coloniser.

While capturing a consensus of sorts, the 1989 decision is also a concession of the deep-seated politicisation of these national moments, Azzopardi remarks. 'History becomes all too convenient in the hands of the politician who sees an opportunity to spin facts and stir emotions,' she cautions. By fostering an inclusive and informed discourse about Malta's past, national holidays can become catalysts for unity and reconciliation rather than sources of division.

FUTURE CHALLENGES AND OPPORTUNITIES

Malta faces a myriad of challenges and opportunities as it navigates the complexities of the 21st Century. Chircop identifies demographic transition, economic sustainability, and environmental degradation as key issues that require urgent attention. 'We should take this 60th anniversary to seriously rethink and plan structural reforms required for a modern European independent nation to thrive in a rapidly changing global scenario,' he asserts, calling for innovation in Malta's economic model and highlighting the need to maintain and consolidate secularism and further civil liberties.

Xuereb highlights the importance of education in shaping Malta's future, quoting Chinese Philosopher Confucius: 'If you think in terms of a year, sow a seed; if in terms of ten years, plant trees; if in terms of one hundred years, teach the people.' Xuereb advocates for a holistic approach to education that fosters critical thinking, creativity, and cultural awareness among Maltese youth; a process which demands 'a maturation of a real independent mentality where love of one's country and peaceful universality serve us to live a more valuable life.'

Concurrently, Azzopardi highlights the need to address systemic issues, such as governance and income inequality, to ensure a more equitable future for all Maltese citizens. 'If we have not been able to dispel

While Independence Day is a moment to commemorate Malta's accomplishments, it should also serve as an occasion for critical reflection on its challenges, and an evaluation of strategies to overcome them.

Her Majesty Queen Victoria, who never visited Malta, has enjoyed a seat in the later-named Republic Square, Valletta, since 1891. *Sigġu* (2024) by Austin Camilleri invites us into the cultural debate. But beyond this, we are invited to consider where Malta's governance is headed.

Image courtesy of Matthew Mirabelli

A disused British-era telephone box in Merchants Street, Valletta. In 2024, the iconic telephone box is still found in our streets.

Source: **Shutterstock**

the colonial-cum-servile mentality after so many years,' she warns, 'then the big challenge is having to deal with more of the same.' By addressing these challenges head-on and embracing opportunities for growth and development, Malta can chart a course towards a brighter and more prosperous future.

LOOKING AHEAD

By way of conclusion, it is opportune to reflect on the nation's 60-year journey and celebrate its milestones, acknowledging the trials that have shaped its path. This significant occasion calls for a collective reaffirmation of the ideals that have underpinned Malta's progress—freedom, democracy, and self-determination. These principles have not only guided the nation's evolution but have also become the bedrock of its identity.

Reflecting on Malta's rich history offers valuable lessons that can inform its present and future endeavours. The country's past is a tapestry of resilience, adaptation, and perseverance, woven through centuries of foreign dominion, struggle for independence, and subsequent efforts to forge a sovereign identity. By delving into the history of our nation, we can better understand the spirit that has driven Malta forward and continue to draw inspiration from it.

Engaging with the present means confronting the contemporary challenges that Malta faces with a proactive and solution-oriented mindset. Issues such as economic sustainability, environmental conservation, and social cohesion require immediate and sustained attention. It is through active participation in civic life, robust policy-making, and inclusive dialogue that Malta can navigate these complexities.

Taking cue from Sathnam Sanghera's *Empireland* (2021), Azzopardi's words resonate deeply in this context: 'It is time we ended the culture war. To draw pride or shame from history is not the same as understanding it. Those feelings should have nothing to do with it. What we should be doing is reach deeper into the archives while simultaneously engaging in a meaningful discussion on today's challenges.' These remarks encapsulate the need for unity and a concerted effort to transcend divisive politics. By moving beyond internal conflicts and rallying around common goals, Malta can foster a sense of national solidarity that is crucial for progress.

Plasma Guns 2.0: Disinfection Redefined through Project ACTIVE

Author: **Andrea Cuschieri**

Surface disinfectants are crucial in keeping us safe, especially during health crises like COVID-19. In October 2021, **THINK** *engaged with the team of Project SANITAS about this matter. Now, SANITAS has evolved into Project ACTIVE, which takes disinfection to the next level through advanced technology that creates disinfectants right where they're needed. This article explores how ACTIVE works, the challenges it faces, and its potential to transform how we stay clean and healthy.*

Amid the chaos of COVID-19, a group of researchers armed themselves with an unconventional weapon – plasma. Not the kind found in our blood, but rather the energised fourth state of matter. Imagine harnessing the power of lightning to annihilate germs on surfaces all around us. Sounds like something out of a sci-fi movie, right? Well, Project ACTIVE managed to bridge reality with science fiction.

But before we dive into this energised adventure, let's rewind a bit and set the stage. Picture a world gripped by a pandemic, where hand sanitisers have become scarce as gold and disinfection is the mantra of the hour. It was in this chaos that Project SANITAS emerged.

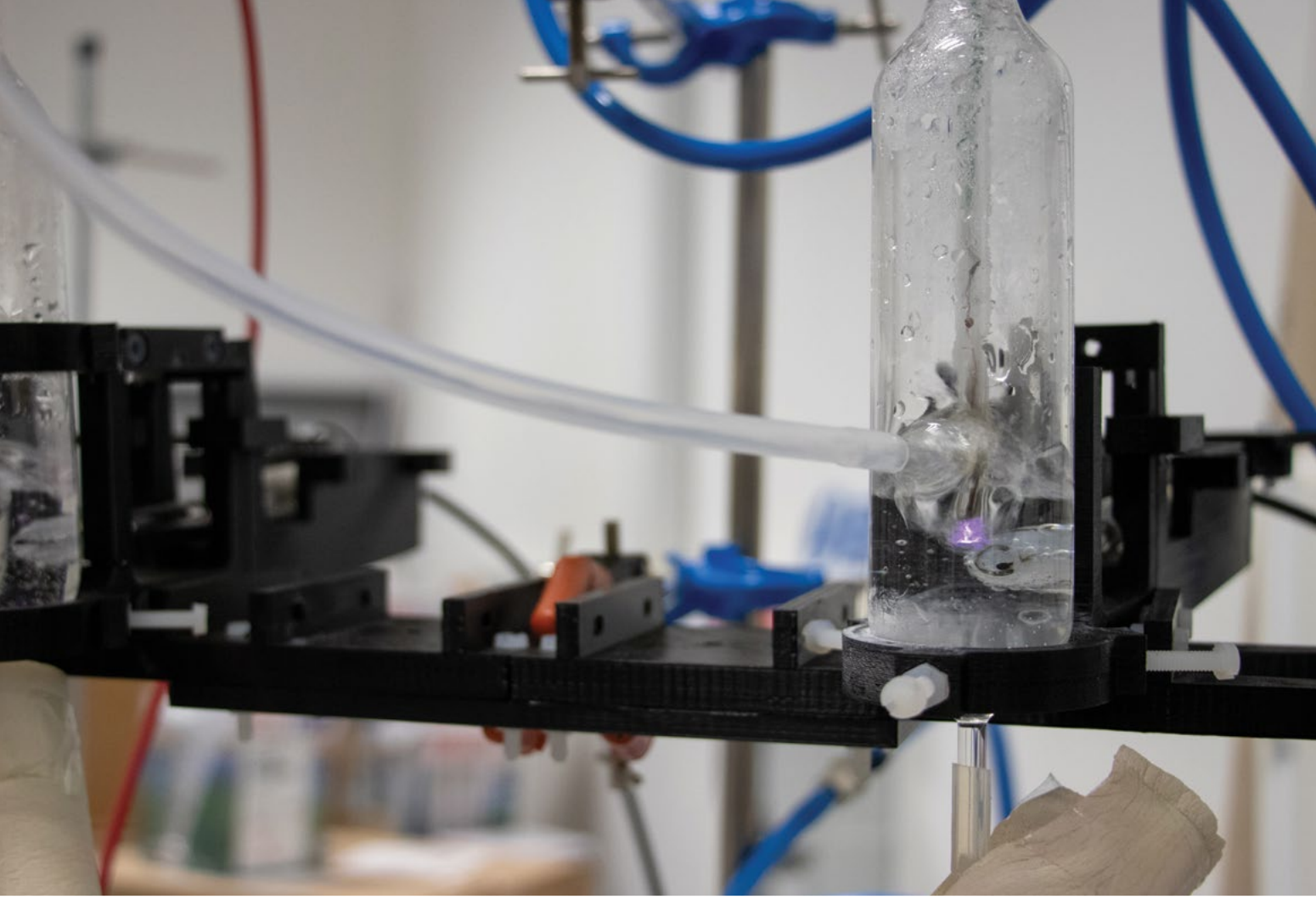
The research team was originally developing a means for improved antimicrobial solutions that would make seeds safer for human consumption. However, their focus quickly pivoted when the scarcity of hand sanitisers highlighted the urgent need for alternative disinfectant solutions. Project SANITAS was conceived to provide innovative solutions to combat the dire need for a reliable supply of effective disinfectants.

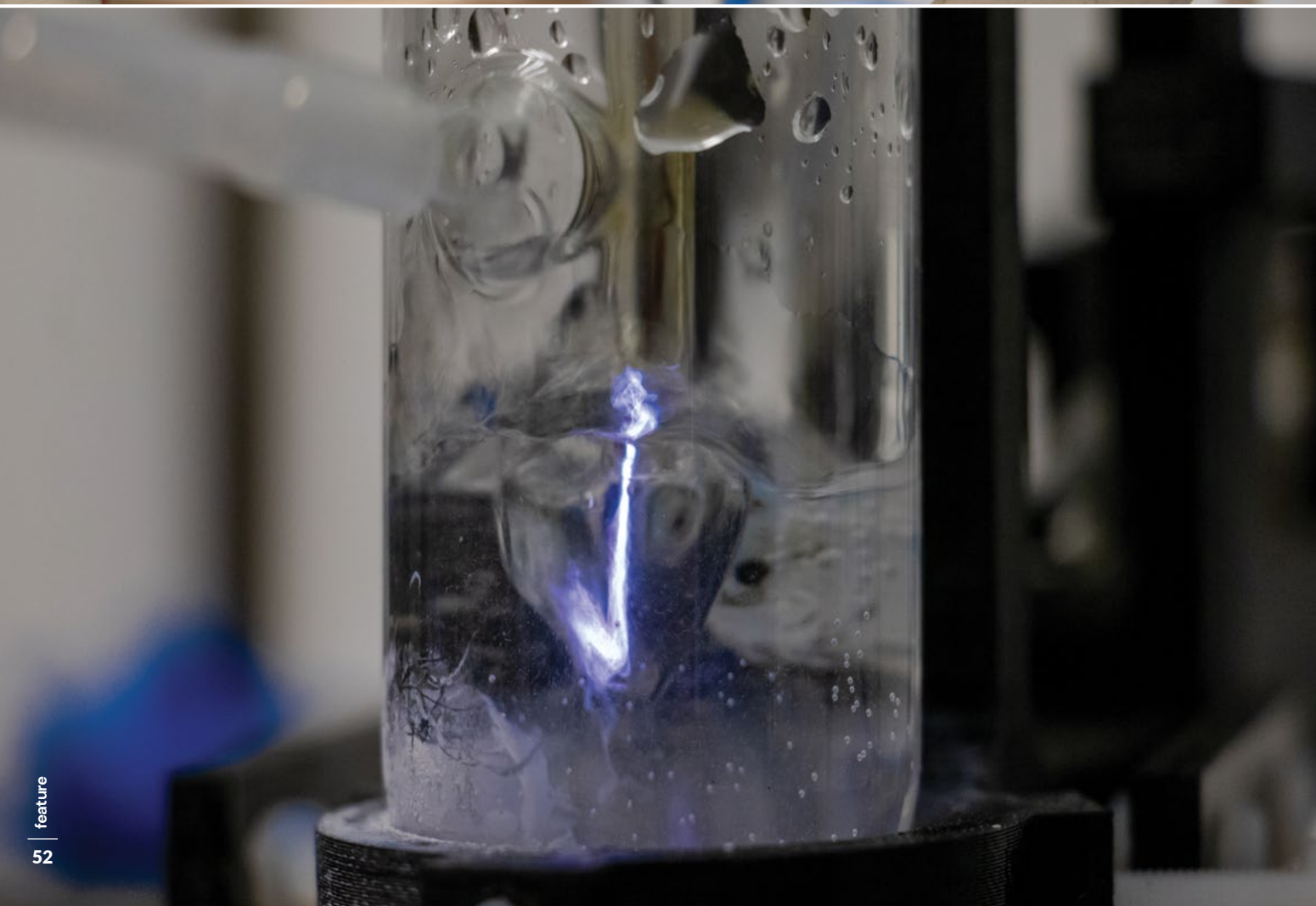
Fast-forward to the present, and SANITAS has metamorphosed into Project ACTIVE, a dynamic evolution of its predecessor. Building upon SANITAS's foundational research and technological advancements, ACTIVE seeks to further refine and optimise non-thermal plasma-based disinfection technology for a wide range of applications. But what is non-thermal plasma-based technology?

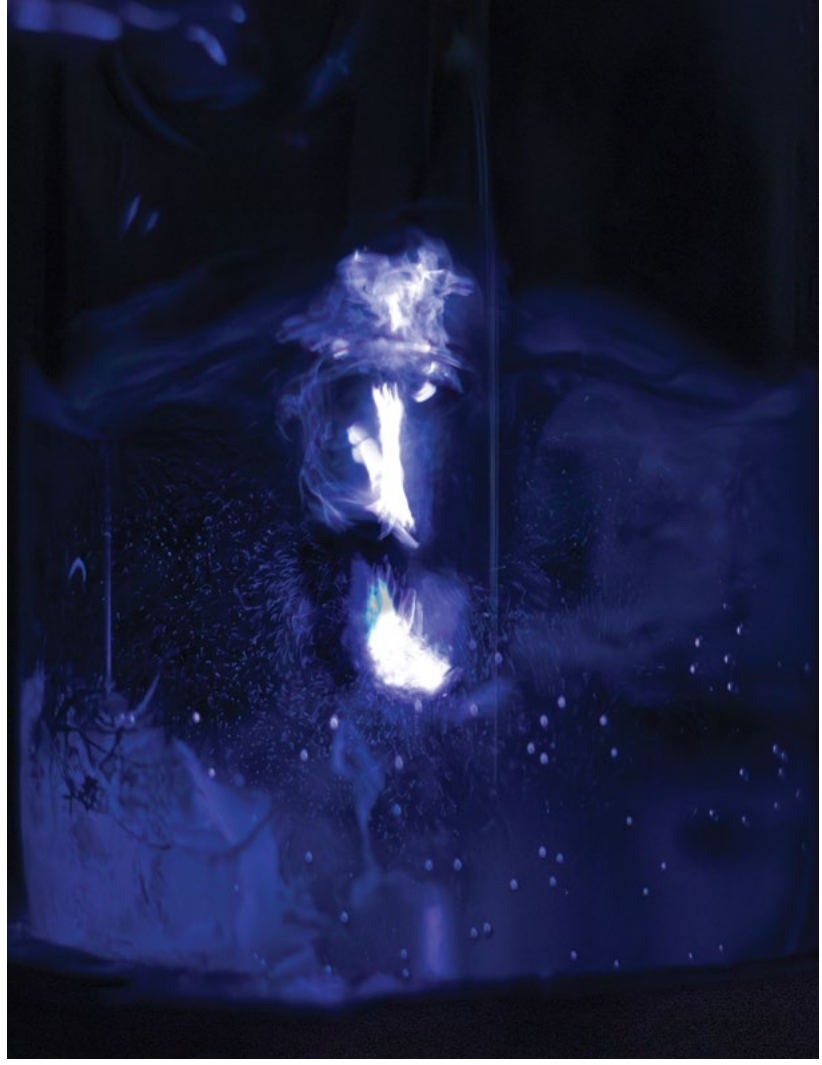
EXPLORING THE TECHNOLOGY: NON-THERMAL PLASMA DISINFECTION

At the heart of Project ACTIVE lies the utilisation of non-thermal plasma for disinfection purposes. Imagine if you could turn air into a special kind of glowing, high-energy gas, sort of like the light in a neon sign. Put simply, that is what plasma is! It's a supercharged form of gas that can do some really cool things.

Project ACTIVE utilises innovative technology to create plasma at lower working ambient temperatures (hence why it's called non-thermal plasma).







Images (left and right) show non-thermal plasma discharges used for the production of plasma activated solutions

Photos by Kristov Scicluna

In this case, the plasma generated is used to energise water molecules and other chemicals to produce reactive oxygen species. With their unbalanced electrical charges, these ionised chemicals can destabilise germs' protective coatings, which deactivates and neutralises them. In fact, Project ACTIVE's non-thermal plasma-based disinfection sets it apart from traditional chemical agents by creating harmless by-products, minimising ecological impact while effectively combating pathogens.

One of the distinguishing features of non-thermal plasma disinfection is its ability to target a broad spectrum of pathogens, including enveloped viruses like SARS-CoV-2. This versatility makes it a promising tool for combating infectious diseases in various settings, from healthcare facilities to food processing plants. Additionally, non-thermal plasma offers several advantages over traditional chemical disinfectants, including reduced reliance on harmful chemicals and a smaller environmental impact.

REGULATORY CHALLENGES AND SAFETY STANDARDS

It's better than conventional disinfectants, has fewer harmful chemicals, and can be produced from water, so why aren't we using this everywhere? Despite its potential, developing and implementing non-thermal plasma disinfection technology poses significant regulatory challenges. Biocidal products, including disinfectants, are subject to stringent regulations set by governing bodies such as the European Commission. Compliance with these regulations requires extensive testing and evaluation to ensure the safety, efficacy, and environmental impact of the technology.

Before becoming regulated, Project ACTIVE needs to conduct comprehensive testing to demonstrate its effectiveness against various pathogens, including bacteria, fungi, yeast, and viruses. Additionally, safety assessments must be conducted to evaluate the potential toxicity and irritability of the disinfectant formulation, ensuring it is safe for human use.

GREEN TECHNOLOGY WITHIN HEALTHCARE SETTINGS

In addition to ensuring the safety of the disinfectant for human use, researchers aim to minimise its impact on the environment. Traditional chemical agents often leave residues

The Project ACTIVE team from left to right: Dr Sholeem Griffin, Prof. Ruben Gatt, and Dr Jefferson De Oliveira Mallia
Photo by Kristov Scicluna

that can harm the environment. However, Project ACTIVE's non-thermal plasma-based disinfection creates reactive oxygen species from water and other chemicals, which break down into harmless substances, reducing environmental impact.

Furthermore, Project ACTIVE focuses on energy efficiency during plasma generation. Researchers adjust parameters like gas composition and discharge characteristics to minimise resource use without sacrificing disinfection effectiveness. This eco-friendly approach not only cuts operational costs but also reduces the project's carbon footprint, promoting environmental sustainability.

Moreover, Project ACTIVE emphasises developing environmentally friendly disinfectant formulas. Chemists carefully select compounds with biodegradability and low environmental toxicity, ensuring minimal ecological impact throughout the disinfectant's life cycle. Efforts to enhance stability and shelf-life also minimise waste and encourage sustainable usage.

DECENTRALISATION FOR ENVIRONMENTAL IMPACT REDUCTION

Instead of relying on traditional methods that involve making and moving disinfectants over long distances, Project ACTIVE can install disinfection machines directly where needed, such as in hospitals, kitchens, and public areas. Dr Jefferson De Oliveira Mallia (research support officer at the Faculty of Science) explains: 'At its core, Project ACTIVE seeks to decentralise disinfectant production by introducing on-site manufacturing devices capable of producing certified disinfectants without reliance on traditional supply chains.'

This change reduces the need to transport disinfectants around, which cuts down on pollution from transportation and waste due to packaging and handling. By making disinfectants closer to where they are used, Project ACTIVE reduces waste and helps keep the environment cleaner.

The potential applications of Project ACTIVE extend beyond healthcare and hygiene to various sectors, including food safety, agriculture, and environmental remediation. In the food industry, plasma-based disinfection can be used to decontaminate surfaces, equipment, and packaging materials, reducing the risk of foodborne illnesses and extending shelf life. In agriculture, plasma technology shows promise for treating seeds and controlling plant diseases, offering a sustainable alternative to chemical pesticides.

Environmental applications for the technology developed through Project ACTIVE include air and water purification, soil remediation, and waste treatment. Plasma-generated reactive species can degrade organic pollutants, neutralise harmful pathogens, and remove contaminants from environmental matrices. By harnessing the power of non-thermal plasma, Project ACTIVE aims to contribute to environmental protection and sustainable development, mitigating pollution and promoting ecosystem health.

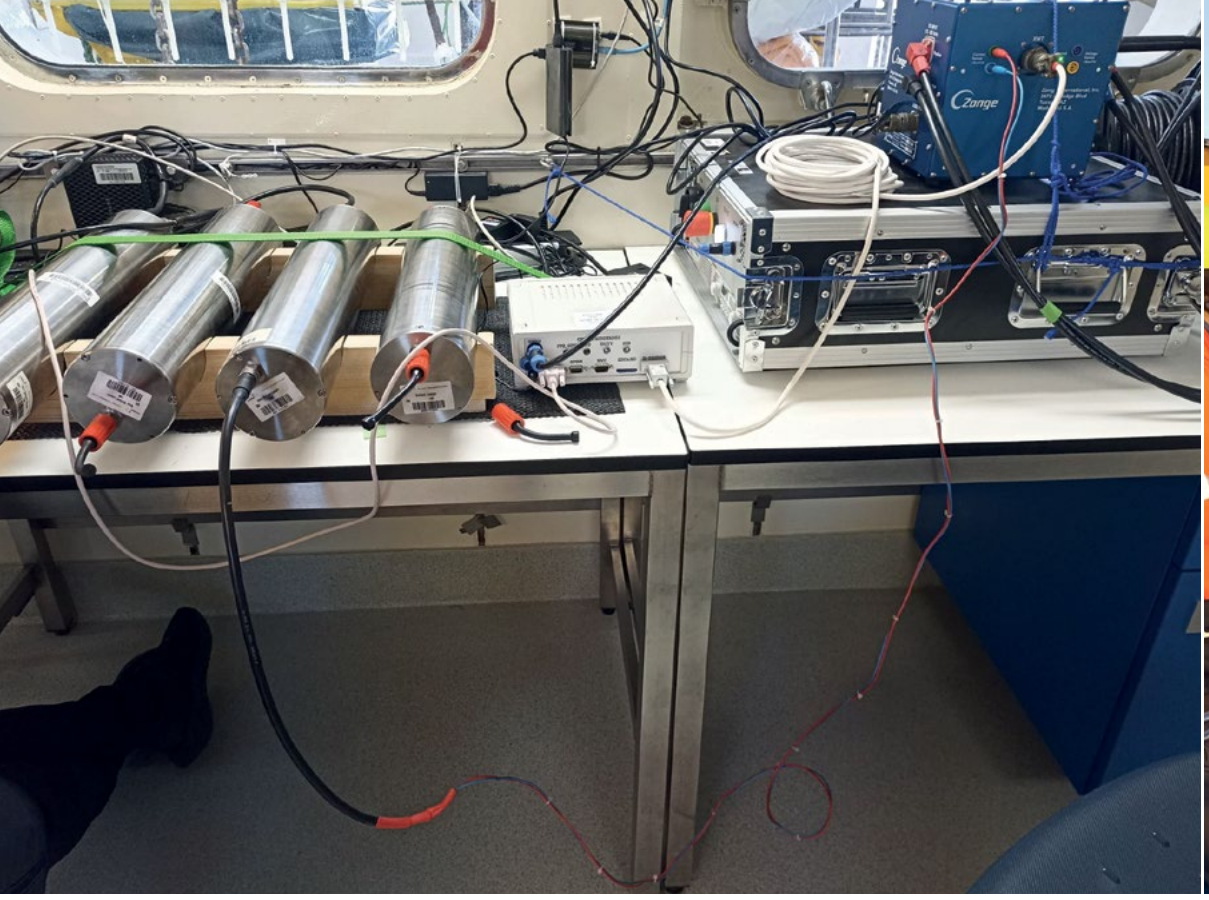
Looking to the future, Project ACTIVE envisions a world where plasma-based disinfection is widely adopted as a safe, effective, and environmentally friendly solution for protecting public health and enhancing quality of life. Through ongoing research, innovation, and collaboration, Project ACTIVE strives to realise this vision, paving the way for a cleaner, healthier, and more sustainable future for all.

Project ACTIVE (R&I-2022-015L) is financed by the Malta Council for Science & Technology, for and on behalf of the Foundation for Science and Technology, through the FUSION: R&I Technology Development Programme LITE.

Fresh Water Under Seawater

Author: **Sarah Schembri**

*Underground reserves of water are not limited to being onshore; there are reserves offshore as well. Finding and characterising them has generally required expensive machinery usually reserved for oil exploration – until now. The **SWAN project** has developed a system that can detect offshore freshened groundwater cheaply and easily.*



The instruments enabling the transmission of the input signal (blue box) and the four output signal loggers (metal cylinders)
Image courtesy of Dr Anna Eliana Pastoressa

Thousands of years ago during the last ice age, the sea level in the Mediterranean was lower, and some land that is presently underwater was exposed ground. Back then, just like today, rainwater made its way through cracks, fissures, and pores until it found an impermeable layer and pooled in underground reserves.

Eventually, most of the glaciers on the European continent melted, and the sea level rose. The surface changed drastically, but the underground reserves remained. The water within these reserves, which exhibits lower salinity compared to the seawater above and is often fresh, is called offshore freshened groundwater (OFG).

DIFFERENT KINDS OF UNDERGROUND RESERVES

There are plenty of these offshore underground reserves of freshened water in Malta, mostly off the eastern coast. Because of the way they were formed, OFG reserves are usually found close to the coast rather than in very deep waters. The primary characteristic of these reserves is that they are static reserves of groundwater found within the first 100m beneath the seabed. OFG reserves have been detected all over the world, although information beyond their general location is often not known.

In the Adriatic off the coast of Italy, OFG reserves have been surveyed, and there are also sites of submarine groundwater discharge (SGD). SGD sites are in fact more common worldwide than OFG sites (see map), and they are different because SGD sites are not static. At SGD points, freshened water flows up and out of reserves, integrating with the seawater above them. SGD sites are also frequently replenished with freshwater. This is the case in the western Adriatic, where several SGD points are consistently replenished by rivers that flow to underground reserves, which in turn extend to areas under the seabed.

With water scarcity due to climate change becoming an increasingly important global problem, it has become more and more important to track reserves of freshwater. OFG and SGD sites could provide an additional source of freshwater. Detecting pockets of groundwater underwater is usually an expensive, laborious process, but this is changing thanks to the work of researchers and engineers at UM, GEOMAR, and Texas A&M University.

FISHING FOR WATER

Dr Anna Eliana Pastoressa is a research support officer within UM's Department of Geosciences working on the SWAN project. She explains that the classic method of searching for offshore groundwater is by mapping what's

***Left*: Assembly and deployment of the SWAN system**
***Right*: Deployment of the SWAN system in seawater**
Images courtesy of Dr Anna Eliana Pastoressa

under the seabed with drilling, which typically provides limited information on offshore groundwater resources. However, on the SWAN project, Pastoressa and her local and international colleagues have developed a new CSEM system that is cheaper and which can easily be adapted to survey different kinds of bedrock as well as investigate large areas. 'With our methods, we can continuously survey the entire area of interest for OFG and SGD, obtaining a comprehensive overview,' Pastoressa explains.

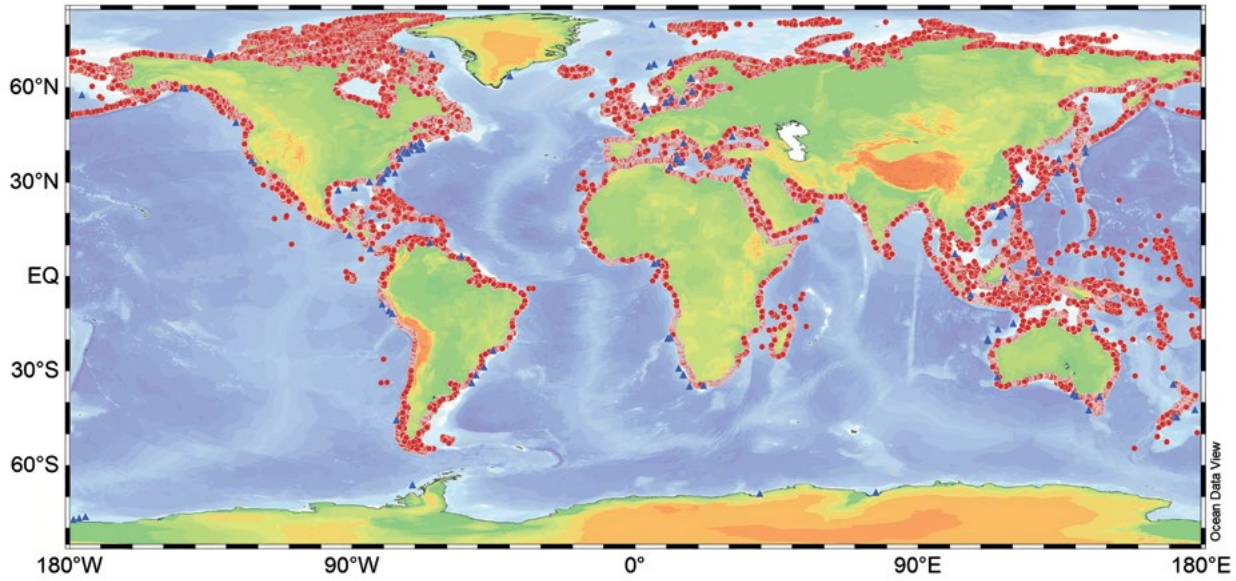
Originally, CSEM technology was developed for oil exploration. Receivers are usually placed on the seabed in a grid formation. Then, a transmitter attached to a ship with a cable is dragged through the array of receivers while emitting an electromagnetic field. The electromagnetic signal penetrates the subsurface and is detected by the receivers. As the electromagnetic current passes through different subsurface layers, it changes amplitude and phase depending on the type of rock. Pockets of oil, gas, or water can be detected by the unique way they attenuate the electromagnetic waves.

Pastoressa explains that this process is not only labour-intensive but also that the receivers are sometimes broken in the process. A large vessel is needed to carry all the receivers, the transmitters, and the machinery needed to deploy them. Moreover, specialised engineers need to be on board to oversee deployment and fix any problems that may arise.

The CSEM system developed in the SWAN project does not have these disadvantages and does not need the enormous funds usually reserved for oil exploration missions, which means it can feasibly be used for OFG exploration. SWAN's CSEM system tows both the transmitter and the receivers at the sea surface by attaching them to two cables up to 1km long and towing them behind a vessel (even a 30m long vessel is enough). The electromagnetic current is emitted, travels through the water column, and penetrates the subsurface before it bounces back to be detected by the receivers at the sea surface.

Unlike CSEM systems used in oil investigation, which are typically designed to map up to thousands of metres below the subsurface, the SWAN system can only provide information up to 250m below ground. This, however, is not a limitation when it comes to looking for freshened groundwater because reserves are rarely observed deeper than 160m.

A towed system also means that scientists can continuously scan the bedrock instead of only getting isolated point information. The SWAN system is also quicker and, as Pastoressa emphasises, 'much more modular', which allows it to be adapted for other types of investigations.



World map showing all the known locations of offshore groundwater. Offshore freshened groundwater (OFG) is represented in blue triangles. Submarine groundwater discharge (SGD) is represented in red circles.
Image courtesy of Dr Anna Eliana Pastoressa

SWAN TRIALS

The new towed CSEM system developed by SWAN has already been tested in the western Adriatic, off the coast of Ancona and Puglia, where the offshore freshened groundwater reserves have not been mapped yet. The trials were a success, with both OFG and SGD sites being successfully and efficiently mapped. The data revealed freshened groundwater where it was expected and also quite a lot of gas pockets, probably methane.

Some minor problems were encountered when the motion of the vessel caused interruptions in the synchronisation of the transmitter with GPS, resulting in missing measurements. This issue is currently being worked on, and the SWAN CSEM system will be tested again, this time off the eastern coast of Malta.

Although offshore freshened groundwater is not the ultimate solution for Malta's water scarcity problems, it would not hurt to have a detailed overview of where this water is and how much of it there is. OFG reserves tend to be near the surface, sometimes just 15 m into the bedrock, and therefore relatively easy to get to. However, extracting the water without proper mapping could lead to seabed collapses. Nonetheless, the ease of deploying the SWAN CSEM system makes mapping and surveying these pockets of freshened groundwater possible. And who knows? OFG might even prove to be a mine of information on our geological past.

In the meantime, if you're wondering what is under the water underwater, it might just be more water!

The SWAN project is funded by the Maltese Energy and Water Agency through the 2021 Research and Innovation scheme in Energy and Water.

Further reading

Pastoressa, A. E., Haroon, A., Everett, M. E., Rohde, L., Bartels, T., Wollatz-Vogt, M., Zahra Faghih, Gesa Katharina Franz, & Micallef, A. (2023). SWAN: A surface-towed modular controlled-source electromagnetic system for mapping submarine groundwater discharge and offshore groundwater resources. *Leading Edge*, *42*(9), 590–597. https://doi.org/10.1190/tle42090590.1

Unlocking Efficiency: Finding and Fixing Compressed Air Leaks in Industrial Machinery

Author: Christian Keszthelyi

*The **AIR SAVE** project uses Industry 4.0 (integrating intelligent digital technologies into manufacturing processes) to analyse high-pressure air systems in manufacturing and identify faults where air could leak during an industrial process. But why should we care about air leaks in machinery? Air is a free and infinite resource, after all.* **THINK** *speaks to **Prof. Ing. Paul Refalo** (lead investigator) and **Prof. Ing. Emmanuel Francalanza** (co-investigator) to discover further.*

Compressed air systems are fundamental in industrial settings. High-pressure air systems are widely used in automated assembly and production processes, streamlining operations and increasing productivity. But it comes with a serious caveat. Machines powered by pressurised air are energy-intensive. In fact, compressed air ranks as the most intensive resource after electricity, fuels, and water.

Machines running on compressed air are usually in operation 24/7. With such a workload, they wear down quickly and are prone to faults. The most common deficiency is air leakage: when air escapes from the system. To counteract this, operators often increase the pressure to compensate for the loss; however, this is only a temporary and pricey solution. On the one hand, higher pressure means the machine will need more energy to operate, therefore more resources are needed. On the other hand, higher pressure will cause further issues in machinery that is calibrated to operate with a certain pressure – increasing pressure only creates more problems.

If leaks are so costly, why not just locate and fix them? 'As we're talking about air, leakages are invisible. In case of water or oil, a leak is immediately apparent. With air, machine operators don't have that luxury to easily locate the issue,' says Prof. Ing. Paul Refalo, lead investigator and Sustainable Engineering Expert at the Department of Industrial and Manufacturing Engineering, UM.

FINDING THE LEAK

Although we don't see the leak, the effects are immediately noticeable – you have a pressure drop. If the pressure drops, the actuator will take longer to operate, and the efficiency of the machine is marred. An actuator is a mechanical part that makes a specific physical movement in the automated manufacturing process. If the pressure drops, this movement takes longer, and the end product will take longer to produce – whether it's a plastic bottle, a soda can, or the doors of a car.

Considering this perspective, air leakage is detrimental. It wastes time and energy and leads to more rapid wear on a machine, which results in further faults – potentially even more leaks. It makes sense, then, to be more vigilant about leakages and invest effort in locating and fixing them.

However, 'finding a leak is cumbersome,' says Prof. Ing. Emmanuel Francalanza, Digital Manufacturing Expert at the Department of Industrial and Manufacturing Engineering. The machines are loud, so it's almost impossible to hear the hissing sound of a leak in a factory. Furthermore, we're talking about massive production halls with hundreds, if not thousands, of failure points. Technology present in the market uses microphones and noise analysis to find leaks, but this usually happens as part of an audit or annual shutdown, which is not prompt enough to deal with issues.

DEALING WITH THE LEAK

Currently, dealing with air leakages is problematic. However, the AIR SAVE project uses novel technologies and AI to monitor the parameters of high-pressure compressed air systems and compare these to a benchmark to find faults.

The preliminary research began around 2018, when the investigators started exploring how pneumatic systems consume and waste energy. Their enquiry into this issue grew into a collaboration because they wanted to understand how much energy and air these systems would consume.

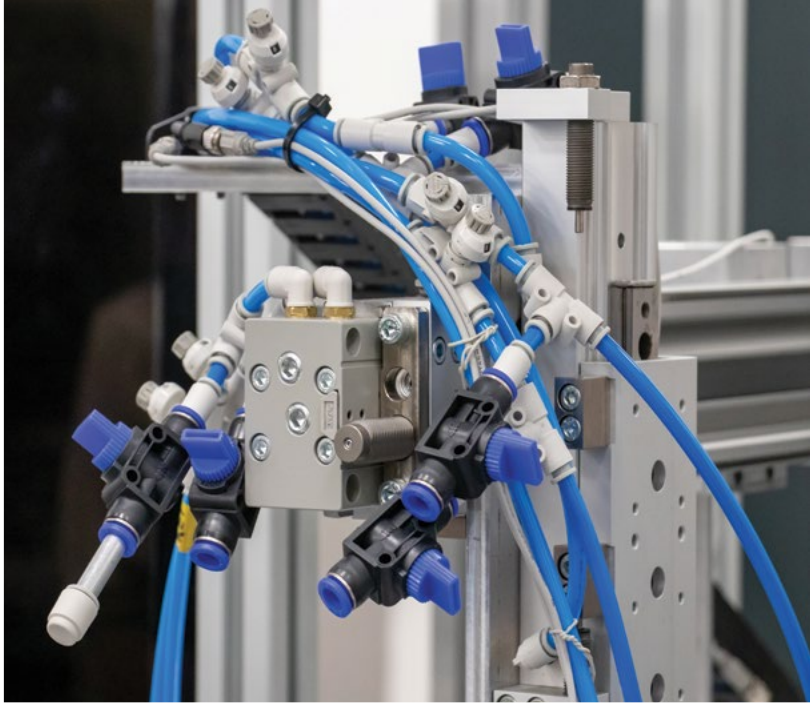
Two years passed, and when the project participants started understanding consumption better, they applied for research project funds in 2020. The AIR SAVE project's official kickoff took place in 2021, when the Malta Council for Science and Technology approved funding of the project.

As the three-year project is nearing completion, the team is happy with the progress achieved. They've collected an immense amount of data that is being used to train AI and optimise AIR SAVE. 'As we're hitting the goals we had set, we're also seeing further questions arising that will help us improve our system in the future,' Refalo says.

AIR SAVE has led to an Industrial Internet of Things solution that integrates hardware and software solutions. Its software communicates with smart sensors installed in industrial equipment. These sensors can be fitted when machinery is built or retrofitted to already operating machinery. Furthermore, AIR SAVE's software can collect information from sensors already installed in machinery for other purposes.

'AIR SAVE collects and analyses data in real time,' Francalanza says. 'In the framework of this project, we've analysed the data to identify what the best parameters to use for machine learning are, and we've developed the machine learning algorithms to identify and characterise the faults industrial machinery may exhibit,' he adds.

This high-tech solution notifies the company where faults in the production line are located and quantifies the costs and CO_2 production so plant owners can make educated decisions on dealing with air leaks. Based on the big data the project has been collecting, the project team has also improved the solution to not only monitor and locate issues but also control the systems for more efficiency.



The AIR SAVE system at work
Photos by James Moffett

Ideally, once faults have been identified, one expects that they are simply removed. If there's a clogged filter creating a pressure drop, for example, ideally, it is cleaned or changed. If there is a leak, it should be fixed. While this approach sounds like common sense, due to the cumbersome nature of locating air leaks, the industry simply does not approach leaks in this manner.

Many times, the industry just lives with leaks. The AIR SAVE team is well aware of this approach and is here to offer a solution. AIR SAVE aspires to become a control system for uninterrupted operations, helping plant operators maintain productivity while reducing the effects of faults, leaks, and pressure drops.

The system, therefore, provides information on which pressures and flow rates to increase or reduce to maintain productivity with a smaller impact on energy consumption and lower levels of generated CO_2. Thanks to its optimisation techniques, AIR SAVE offers tangible solutions to industrial issues. It uses multi-criteria decision-making techniques rooted in AI, such as heuristics algorithms, genetic algorithms, and particle swarm optimisation to come up with the best solutions for problems caused by air leakage.

The investigators apply a hands-on approach to the oft-discussed gap between academia and the business world. To bridge this gap, AIR SAVE works together with industrial players. Coming from the industrial and manufacturing engineering department, by default, the research that the team carries out and the problems that they solve are industry-oriented.

However, to translate research into practical solutions, AIR SAVE collaborates with AIM Enterprises Ltd., which brings the understanding of real problems from the industry into academic research. Business representatives and researchers work together to solve real, existing issues in the market.

The project also has an Industrial Advisory Board, with representatives from ST Microelectronics, Methode Electronics, and Toly Products Limited – three of the main manufacturing companies in Malta. This holistic collaboration allows the project team to break the glass ceiling of the laboratory and extend their solutions to the industry.

INDUSTRIAL COMPLEXITY

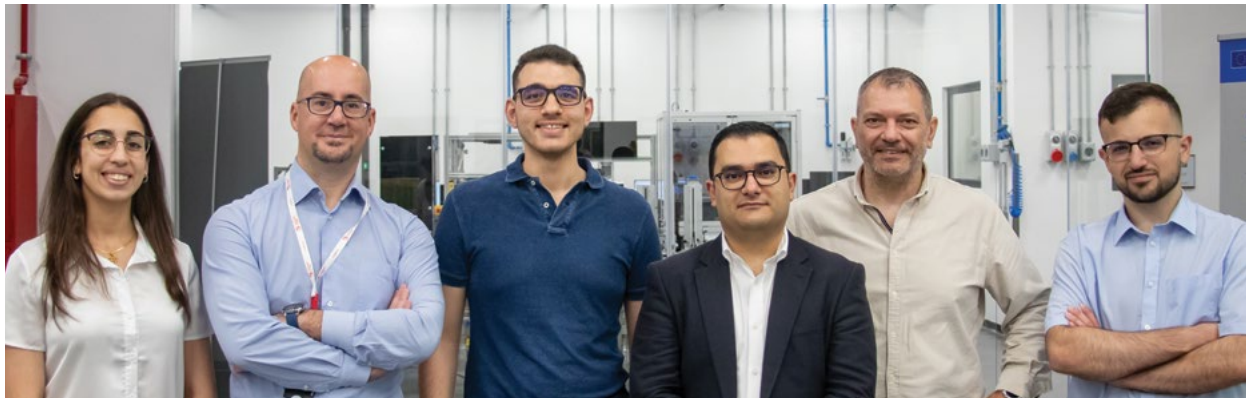
As with any project, AIR SAVE has seen ample challenges. 'One of the main challenges was the learning curve. As with any project, it takes time to build momentum, the know-how, and the knowledge necessary to understand the problem better. As we're venturing outside the lab walls, we've had to understand the requirements and issues of collecting data in industrial operations,' Francalanza says.

Another challenge has been complexity. 'Compressed air systems can be very complex. To prepare for this, we constructed a system in our laboratory that's as close to an industrial setting as possible for experimenting with our approach,' Refalo says. Typically, research in this area is carried out on systems made up of two or three actuators. The greater the number, the more complicated such a system becomes. Therefore, AIR SAVE constructed a system with eight actuators to make it complex before going into industry and testing the system in real environments.

Now that the project is wrapping up, AIR SAVE's next step is entering the market. The inventors have filed an initial patent application in the United Kingdom and are currently looking for potential investors and interested parties willing to work with them and their industrial partner to implement this solution in the industry.

The AIR SAVE consortium, comprising the UM and AIM Enterprises, is funded by the 'R&I Fusion - Technology Development Programme' of the Malta Council for Science and Technology (R&I-2020-008T). The project is led by Prof. Ing. Paul Refalo from the Department of Industrial and Manufacturing Engineering at UM, in collaboration with Prof. Ing. Emmanuel Francalanza from the same department, and Dr Peter Xuereb from the Faculty of Information and Communication Technology. The research team includes two Research Support Officers and Ph.D. students, Massimo Borg and Jasmine Mallia, along with Jurgen Aquilina, a Master by Research student.

The AIR SAVE team from left to right: Jasmine Mallia, Prof. Ing. Emmanuel Francalanza, Massimo Borg, Prof. Ing. Paul Refalo, Dr Peter Xuereb and Jurgen Aquilina
Photo by James Moffett



AVAIL, The Self-Custodial Crypto Wallet Start-Up

Author: **Lion Preissl**

In an era where digital currencies are not just an investment but a revolution, the importance of a secure, private wallet cannot be overstated. Amidst a sea of blockchain endeavours, ***AVAIL*** *emerges as not just a start-up but as a beacon of autonomy and privacy in the cryptocurrency world.*

AVAIL desktop app
Image courtesy of AVAIL

AVAIL's inception is rooted in a profound realisation by its founder, Zack Xuereb: the stark absence of privacy in blockchain transactions. Unlike traditional bank transfers that hide your balance from the recipient, blockchain transactions historically lay everything bare. This glaring privacy gap led Xuereb to Aleo, the first private programmable blockchain. 'It became clear that someone had to bridge this gap, making this technology accessible for everyday use. Thus, AVAIL was born,' Xuereb shares.

The name AVAIL itself is a testament to the startup's core mission – providing users with the benefit (allowing them to 'avail' themselves) of complete control over their money and data while ensuring their privacy remains intact.

UNDERSTANDING SELF-CUSTODIAL CRYPTO WALLETS

A self-custodial crypto wallet, as Xuereb explains, 'is essentially an application that stores the key to your crypto assets on your device, granting you full control over them.' This contrasts sharply with custodial wallets, where the platform holds the keys to your assets. AVAIL champions this self-custodial approach, ensuring users are not at the mercy of

AVAIL's mission is ambitious and clear: to empower users with ownership of their assets and privacy.

The AVAIL team at an event showcasing the technology and product to the blockchain community in Malta
Image courtesy of AVAIL

third parties for security. 'In the event platforms like Coinbase or Binance face issues or experience a failure in their system, it's not just their problem – it's yours. But with AVAIL, you're in complete control,' Xuereb emphasises.

With self-custodial wallets, users have complete control over their cryptocurrencies and digital assets through private keys. These keys are essential for executing transactions on the blockchain. Since the user controls the private keys, the risk of losing assets due to the failure or hacking of a third-party service (such as a cryptocurrency exchange or custodial wallet service) is significantly reduced. Moreover, users are liberated from the potential impact of third-party policies or regulatory changes on their access to funds. With self-custodial wallets, users retain uninterrupted access to their assets as long as they securely manage and safeguard their private keys.

AVAIL's approach to self-custodial wallets emphasises the control and security benefits whilst aiming to make the technology accessible and user-friendly. By addressing common pain points, such as complicated recovery processes and the need for privacy, AVAIL is making it easier for a broader audience to benefit from the advantages of self-custody. Furthermore, with features like smart legal contracts and competitive international money transfer rates, AVAIL is expanding the utility of self-custodial wallets beyond simple asset storage, making them a comprehensive tool for financial management and autonomy.

THE VISION AND GOALS OF AVAIL

AVAIL's mission is ambitious and clear: to empower users with ownership of their assets and privacy. Leveraging Aleo's technology, AVAIL aims to redefine financial transactions – offering solutions ranging from smart legal contracts that facilitate seamless agreements between parties to ensuring competitive rates for international money transfers. 'Whether sending €1 or €1m, users can expect the same low fee. This democratises financial transactions on a global scale,' Xuereb explains.

Beyond its technical foundation, AVAIL distinguishes itself through its user-centric approach. 'Most self-custodial wallets don't consider users outside the blockchain ecosystem. We're changing that,' Xuereb states. AVAIL is developing features that cater to both blockchain enthusiasts and those new to the concept, focusing on inclusivity, ease of use, and innovative features like smart legal contracts and a robust wallet-recovery process.

AVAIL's journey has been one of relentless innovation and problem-solving. Developing on the cutting edge of blockchain technology has presented numerous challenges, particularly in preserving transaction privacy and ensuring ease of use. 'Finding ways to make private decentralised blockchains easy to use posed significant hurdles. But through innovation and dedication, we're overcoming these challenges,' Xuereb recounts.

THE ROLE OF INCUBATORS

The University's TAKE-OFF Business Incubator has been instrumental in AVAIL's journey, providing invaluable support and resources. 'Their guidance helped us navigate the complex path from concept to launch. We're incredibly grateful for their support,' Xuereb acknowledges.

With the launch of its mobile application on the horizon and plans to support real-money transactions, AVAIL is poised for significant growth. 'We're focused on launching new features and refining our platform based on user feedback. It's an exciting time for us and our users,' Xuereb shares.

AVAIL stands as a testament to the importance of privacy, security, and user autonomy in the digital age. With its innovative approach to self-custodial crypto wallets, AVAIL is set to revolutionise how we think about and interact with digital assets.

Xuereb offers sage advice to aspiring entrepreneurs: 'Don't limit your thinking. Explore freely and let your curiosity guide you. Logical planning and a boundless imagination are the keys to innovation.' T

idea

Imagine There's No Countries...

Author: **David Mizzi**

Borders are, by their very nature, restrictive and violent. What if we created a world with no borders, no sense of country or nationhood, just a global identity?

Consider a world free of conflict, where issues such as poverty and hunger are eliminated. What is stopping us from creating such a world? Let's take a cue from the iconic John Lennon anthem and imagine there's no countries...

Okay, woah, slow down there, brother. It's going to take a lot more than imagination to do that. No countries or nations would mean deleting things like culture and language, groovy things that we'd like to keep. Not to mention the logistical challenge of managing a world without countries.

Yet, the dream of global harmony has been around since the 18th century at least. Charles-Irénée Castel, abbé de Saint-Pierre proposed an international organisation to maintain peace in his *Le Projet de Paix Perpétuelle* (The Project for Perpetual Peace). Meanwhile, Anacharsis Cloots, nicknamed the orator of mankind, proposed a world parliament. Immanuel Kant, in *Perpetual Peace: A Philosophical Sketch*, suggests a league of independent republican states. Many of these ideas formed the foundation for organisations such as the EU and UN.

What about taking these a step further?

NO BORDERS

Let's start by imagining a global nation state, one without borders. It sounds like a nice dream, doesn't it? 'But why would it be a nice dream? Is it because a border is conceived as something divisive?' asks Dr Roberto Debono (a Ph.D. candidate from UM's Department of Philosophy and representative to various WHO-UNECE environment and health entities).

Borders are lines in the sand, drawn to mark one territory in opposition to another. They mark our own territory while simultaneously labelling everyone beyond that line as an 'outsider'. But what purpose do these lines serve?

'Borders are essential from an organisational standpoint. They might be misused or abused, but they serve an important administrative function. Borders are a tool,' explains Debono. Prof. Anna Khakee (Associate Professor of International Relations) explains how fundamental borders are to the current international system: 'Borders function to delimit the scope of a political union. For example, within the borders of Malta, the Maltese authorities govern, and outside the borders, they have no remit.'

Yet, borders are a form of power; they allow a state to control whatever comes in and out, whether it's things or people. Ironically, it is easier for money to cross borders than it is for people, which says a lot about how we value capital vs. the freedom of movement for human beings.

At the same time, how would democracy work in one global state? The elected leaders might not seem far away in Malta (in some senses, they might even be too close), but in larger countries, one common complaint is that political leaders are far removed. In a global state, this problem would get exponentially worse. How can we hold a world president to account?

So, even though borders come with a lot of baggage, they are an important administrative tool. To

manage a global population of 8 billion, we still need borders, if simply for the sake of practicality. So a global nation is out. However, having countries and borders doesn't stop us from creating a global federation or union.

EU AS A CASE STUDY

Take the EU; each country still has its own cultural and political identity, yet people have free movement and are eligible to find work and settle in another state. At the same time, each country is still in many ways sovereign and distinct.

However, the EU, despite being much smaller than the global federation we had in mind, already faces hurdles. Khakee explains, 'Each and every enlargement of the EU has been difficult. Absorbing new members hasn't been easy, as each enlargement makes the decision-making structures more complicated.' For example, when certain decisions need to be unanimous, having more members makes it harder to reach agreement.

There is also the risk of political apathy. Khakee points out how, 'the further you are from the political centre, the more you may feel disenfranchised.' This is reflected in the low voter turnout of 50.66% in the 2019 EU Elections. Countries closer to the political centre of Brussels, had higher turnouts than those countries further away, such as Portugal (30.75%) and Cyprus

Dr Roberto Debono
Photo by James Moffett

(44.99%). Of course, there are many other reasons why voter turnout varies, but with such low numbers on a European level, just imagine how difficult it would be to have democratic representation on a global level.

WORKING TOGETHER

The EU's bureaucratic processes highlight how difficult it is to manage a large organisation. This would only get tougher on a global level. How would you coordinate global efforts, especially when each party involved has its own motives?

Even when faced with a common problem, things are hardly straightforward. Think of climate change. Despite affecting all of humanity, some nations still drag their feet. Interestingly enough, in his Ph.D., Debono suggests setting up a global guardian to help address the ecological crisis.

'A global guardian is a constitutionally limited, legitimate, coercive, global authority,' explains Debono. Each of those words has implications: 'There is a legal mandate to the work of the guardian itself. "Coercive" means it can enforce decisions but only within its exclusive mandate to protect the global ecological commons. "Authority" implies a regulatory function. "Legitimate" is important, as if it doesn't enjoy the support of the polis, then it stops being effective.' For this reason, the global guardian would need to respect principles of good global governance, including subsidiarity, democracy, and solidarity, and these principles would need to be enshrined in the institutional proceedings of the organisation. Essentially, the global guardian would have the legal and coercive capability to enforce globally binding agreements on member states to secure ecological sustainability, which is warranted in view of the urgency with which humanity needs to address the ecological crisis.

Yet if we already see so little effort to address a major crisis, how can we expect nations to work together to address other global issues?

'There is a whole area of international relations dedicated to global governance. It covers issues that affect the entire human race

Perhaps it is time to stop imagining and instead push for ourselves and our leaders to be more responsible.

and beyond: from more technical issues such as telecommunications and intellectual property to more wide-ranging problems including public health, peace and security, environmental governance, and biodiversity loss, for example,' says Khakee. However, trying to develop solutions is another beast entirely. 'States have been reluctant to relinquish power. Even the EU has limited power in certain key areas. There would need to be more power vested at regional and global levels. The question again is how to do that democratically,' she adds.

INTERNATIONAL LAW

For a global federation to function, we'd need a commonly agreed-upon set of global laws that each country is obliged to follow.

International laws already exist in a variety of areas, but enforcement is difficult in a world of sovereign states. However, without a way to enforce them, international laws might be well-intentioned but effectively toothless. Unless there are consequences (or the threat of consequences), people will not necessarily follow the law. Despite the risk of jail time, some still choose to commit grand larceny, for example. The same is true on an international level. Granted, there is the International Criminal Court (ICC), which issued an arrest warrant on Putin for war

Prof. Anna Khakee
Photo by James Moffett

crimes and, more recently, the ICC prosecutor singled out Hamas leaders and the prime minister and defence minister of Israel, yet they are hardly at risk of being arrested.

'It is kind of absurd that in this day and age, we have sophisticated societies, laws, regulations, police forces, judiciaries, and then when we come to the international level, it remains essentially the law of the strongest,' explains Khakee. 'At its basis, the international arena is ruled by implicit or explicit threats of the most powerful states. Inside a state, the police enforce the law. But on an international level, there is no equivalent law enforcement.'

While UN organisations, such as the ICC, the International Court of Justice (ICJ), and the Security Council, exist to uphold international peace, they face significant challenges. The ICJ, for example, can only entertain a dispute if the states concerned have accepted its jurisdiction, and even then, the ICJ cannot enforce its verdict. For example, in 2022, on the 16 March, the ICJ ordered Russia to immediately suspend military operations in reference to Russia's invasion of Ukraine. The order is binding on Russia, but the ICJ cannot enforce it.

On the other hand, the Security Council's five permanent members often use their powers of veto to protect their national interests. Even if the rest of the council agrees, if one permanent member doesn't, then the motion does not pass. Incidentally, this is exactly what happened when trying to find a resolution to the conflict in Gaza.

Our current global organisations, despite their best efforts, still face challenges. Something even more ambitious, such as a Global Federation, unfortunately, feels far too utopic. Perhaps the biggest challenge, as many classical political thinkers believe, is humanity's egotistical nature. Even when faced with global problems, such as climate change, the pandemic, or war, humanity and nations often drag their feet. Perhaps it is time to stop imagining and instead push for ourselves and our leaders to be more responsible.

Student on Weekdays, Shutterbug on Weekends

Author: **David Mizzi**

Imagine travelling the world and having exclusive access to headliner acts in festivals like Coachella and Rock Werchter, all while taking wicked photos for the gram. It sounds like a dream, right? For UM Alumna ***Emma Tranter****, that's just another Monday morning.*

Emma Tranter on stage with international female DJ duo, Nervo, at Tomorrowland
Image courtesy of Emma Tranter

Emma Tranter at Coachella
Images courtesy of Emma Tranter

Before taking off as a rockstar photographer, Emma Tranter studied for a Bachelor of Science degree in Business & Information Technology at UM and then read for a Master's of Science in Cyber Security from the University of Birmingham. She was even shortlisted for the Malta E-Business Awards for Best Academic Dissertation for her bachelor's. But there's quite a gap between computer science and top-tier photography. How did Emma even start?

ALL ROADS LEAD TO THE DANCEFLOOR

Carl Cox

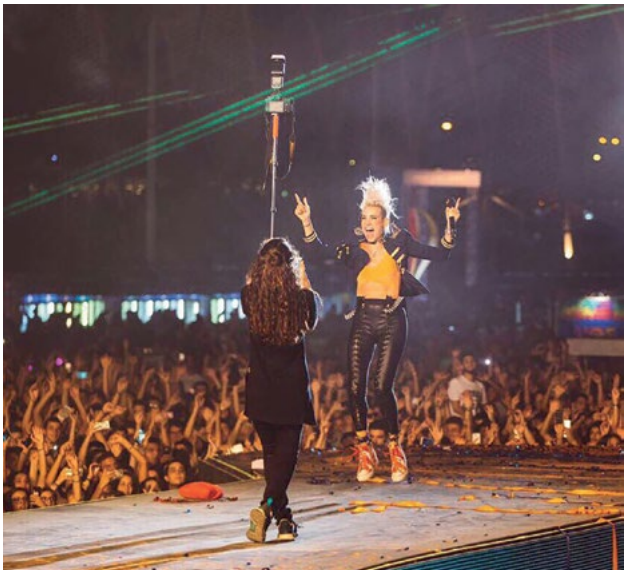
'I was brought up in a cultural environment. When I was younger, I used to hang around my mother's dance studio after she finished rehearsals. I had this pocket camera, a Christmas gift, and started capturing small moments,' recounts Emma. 'I used to take it out with me to Surfside, to these little parties. It just continued growing after that, saving up for a DSLR, and eventually, it went from a hobby to an actual job.'

While studying at UM, Emma would work part-time jobs shooting events or international artists during the summer or a few weekends here and there. She reached out to various local promoters and applied for press passes to try and get her name out there. It was only a matter of time before Emma finally caught her big break.

'A promoter calls me at the last minute for a random party on a Wednesday, around eight or nine years ago. The previous photographer dropped out, and they needed a replacement for an international female DJ duo, Nervo, who were pretty big in the EDM scene at the time. They came, played, and although the party wasn't so well sold out, I managed to get a few creative angles to make sure the venue didn't look so empty. Case closed.'

Fast forward a few months later, and Emma was on an Erasmus exchange in the UK for the first semester of her third year. 'I was studying at the library, and I got a call from a strange number. Later I found out it was from Australia. Funnily enough, it was Nervo's manager! They loved the photos, and the girls wanted to try me out and go on tour with them. I had no idea what that even meant!'

Nervo was offering to take Emma on tour in Mexico and Costa Rica between Christmas and New Year's Eve. 'I was studying for exams, I was already away from home, and I had never even left Europe. I didn't want to miss Christmas with my family, so I stuck to my gut and declined the role.' A week later, Emma got another call;



> *I would come back from a show with a lot of adrenaline and start writing my thesis.*

Top: **Emma Tranter with Jamie Jones**
Left: **Emma Tranter photographing Nervo on stage**
Images courtesy of Emma Tranter

this time Nervo wanted to take her for a show in India. The show would take place after January, which fit perfectly into Emma's schedule, as exams in the UK finish in January. Despite working on her dissertation at the time, Emma flew out to India for 16 hours, just for the show, and the rest is history. After that, she started touring with Nervo: Tomorrowland, Creamfields, Sziget, Rock Werchter.

By taking an interest, getting to know the DJs, and trying to be as creative as possible, Emma built trust and eventually became Nervo's tour manager in addition to their photographer. 'I was still studying and doing my M.A.; the situation was crazy. During the summer, I had to prepare for my thesis, but I was doing shows uncontrollably. I would come back from a show with a lot of adrenaline and start writing my thesis. Nervo were number 30 in the world. I realised that if I stopped studying, I wasn't going back. I said to myself, I still want to study and finish my master's.'

DIFFERENT SIDES OF THE SUN

Jamie Jones with Hot Natured

Trying to balance studying and work is already stressful at the best of times. But for Emma, work meant flying to a different country. 'I would study from Monday to Friday, and on Friday evening, I'd leave from Birmingham airport. I'd do three shows in Poland, Germany, or wherever, and then be back at university on Monday.'

She was studying cybersecurity, using university routers at Birmingham to understand how people manage to hack into those ports. However, this involved sorting through loads of data, which could only be done on-site. 'Towards the end, I began feeling burnt out. I remember walking through the hall during graduation and thinking, how on earth did I manage?'

After graduating from her M.A., Emma moved on to working with Sigala. 'It's all about networking and making yourself involved. From Nervo, I worked with Sigala, who tours mostly in the UK, although we did tours in Japan and South Korea as well. From there, I moved on to Jamie Jones, and recently I also worked with Carl Cox.'

Besides shooting warehouse parties in Ibiza and hot air balloon sets above Formula 1 tracks, Emma was also creative director for the Dubai Expo with the MTA, representing Malta and

Emma Tranter with Carl Cox
Image courtesy of Emma Tranter

coordinating a team of 70. However, the pinnacle of her career so far has been Coachella.

'Last year, Jamie Jones was invited to play at the Sahara Desert stage. It's a dream. It was a sunset show and really stressful. Because he's playing unreleased tracks, people go in 400%, so there's a huge sense of pressure. But I got to live a bit of the "Coachella Dream". You're there, backstage, hanging out with big names like the Kardashians, Post Malone, Bieber. It's all very surreal!'

'I've been doing this for 7 years, and you meet all kinds of people. Everyone thinks it's the glamorous life, but what has its ups has its downs. It's an intense show; you go to the hotel, prepare content, and then go out for another show. I'm in a new venue every single day, when it's 6 months hardcore. There's the pressure of delivering, and in this industry, there's a million people who want to steal your job,' Emma explains.

FEELS LIKE HOME

Sigala (with Sean Paul and Fuse ODG featuring Kent Jones)

To stand out from the competition, Emma taps into her academic background. Her knowledge of media management has enabled her to gauge how audiences react, giving her insights into what to shoot. 'I realised that the journey from one show to the other was just as important as the content generated during the show. People still like to see the artists having food at McDonald's, for example, because that's relatable.' Her experience in cybersecurity also ensures that Emma keeps her footage safe. 'I connect to 100 wifis in a year, so it's important I keep my data and photos secure when connecting to public wifi.'

Asked about her time at UM, Emma explains, 'I was involved in a few societies at UM, and I loved my time here. Get involved in everything UM has to offer! Societies, projects, exhibitions, anything. You came here to study, obviously, but it's such a nice way of giving yourself a bit of a break from the academic side. There is always a fun side to university!'

Despite the allure of travelling to exotic locations and meeting global celebrities, Emma is always happy to come back home to Malta and enjoy a hearty, home-cooked meal! 'Home is always home.'

to-do list

book

Never Too Small Vol. II

Never Too Small: Reinventing Small Space Living (Vol. II) presents an accessible commentary on 30 small spaces around the world that challenge what it means to live better. Joel Beath and Camilla Janse van Vuuren hold practicality and clever design at the forefront of this volume, ultimately sharing key principles on how to improve one's own space.

videogame

Stardew Valley

Stardew Valley is an open-ended life sim game in which players fed up with corporate life restore their deceased grandfather's dilapidated farm in the countryside. With its relaxing gameplay and nostalgic pixel art, players are invited to unearth the mysteries of Pelican Town and its residents. (Entirely designed by Eric "ConcernedApe" Barone)

music

Clams Casino

A blast from 2010, Clams Casino fuses sludgy-brown beats with hazy distortions and samples to create an overdose of oddly moving atmosphere.

film

Home

An animated sci-fi comedy which broaches the subject of tolerance and life in society. This 2015 feel-good film is bursting with colour and endearing characters.

Brian's Corner

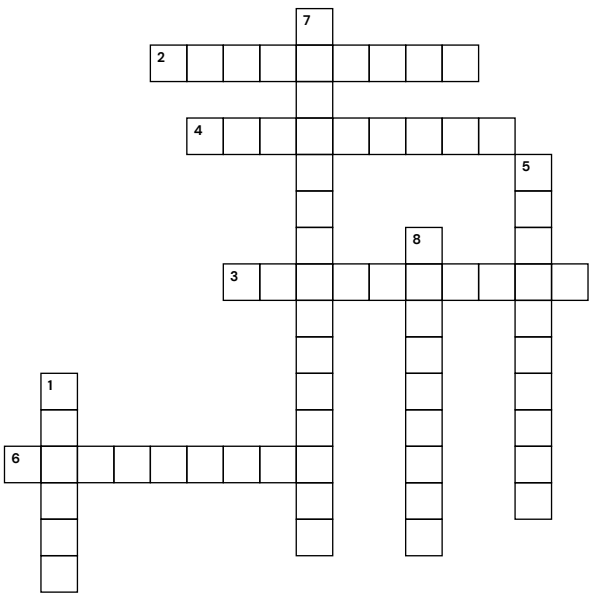
Crossword Puzzle

Across

2. To be aware of something/someone.
3. Another word for 'aggravate'.
4. A figure of authority.
6. In ____ agreement (collective).

Down

1. An armed soldier guarding a specific point.
5. An enthusiastic photographer.
7. To deprive of civil or electoral rights.
8. A field of study on our personal bubble.



THINK Edition 43 Crossword Answers

Across: 2. Cryosleep, 4. Deepfake, 7. Simulation, 8. Android **Down:** 1. Invertebrate, 3. Yeast, 5. Cryptid, 6. Tentacle

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