

# European Projects

## By Arthur's Legal, Strategies & Systems

Arthur's Legal and its Strategies & Systems unit are active in various markets, domains and dimensions, also on European level, within Europe and beyond. With our handpicked experienced interdisciplinary experts we cater for the ability to navigate, enable, facilitate as well as execute and systemize. Our Core Team consists of strategists, attorneys at law, senior legal counsels, governmental advisors, technologists, innovation, policy & standardisation experts are well-connected in the world of technology, digital data, sustainable development goals & global partnerships and prosperity.

Digital technology, climate, pandemics, and other dynamics changes the world at a fast pace. Yet, Humans are underrated. Build, enhance & retain trust with the combination of human brain power, purpose & passion, machines, algorithms, data & accountability. We always aim for the Multiplicity Approach: a certain, dynamic symbiotic combination of diverse groups of people that work together with diverse groups of human-centric machines, algorithms and capabilities to identify, address & solve problems, make & execute decisions, and double-looping capabilities to never-stop-learning.

For more than a decade Arthur's Legal, Strategies & Systems has provided its expertise to the European Commission and in various European projects about various societal challenges, technological developments, and policy instruments. We have consistently taken a multi-dimensional and human-centric approach by engaging in diverse projects that deal with a wide spectrum of topics such as digital sovereignty, cybersecurity, mobility, healthcare, circular economies, internet of things, cloud computing, artificial intelligence, robotics, agriculture, energy, digital transformation, security, safety, privacy, data protection, data management and last but not least ethics in the Digital Age.

Currently Arthur's Legal, Strategies & Systems is or has been active in sixteen (16) multifarious projects in the EU and UK wherein it provides its expertise and collaborates with other experts from different fields. The accrued project sum exceeds EUR250M. The number of countries involved exceeds thirty-five (35). In each brief project description, we have identified key words, the addressed Societal Challenges and Sustainable Development Goals, and countries that are part of such project.

The current projects are, in alphabetical order and with hyperlinks to each project, where available:

- I. **AGRICAPTURE:** Satellites; Geo-Data; Soil Carbon Sequestration; Regenerative Agriculture
- II. **AI4PublicPolicy:** Policy Making; Citizen Participation; Cloud; Transparency
- III. **ARCADIAN-IOT:** IoT Trust Framework; Attributes; Cybersecurity; Privacy; IoT Systems
- IV. **ASCAPE:** Cancer; Health; Quality of Life; Data; AI; Predictive Analytics
- V. **AVENUE:** Autonomous Public Transportation; On Demand; Mobility as a Service; Data
- VI. **BEYOND:** Innovative Data Sharing-driven Energy Service Ecosystems for Building & Beyond
- VII. **CONCORDIA:** Cybersecurity Competence; Data-Centric; Innovation; Digital Sovereignty
- VIII. **DIGICIRC:** Circular Economy; Digital Transformation; SMEs
- IX. **FORTIKA:** Cybersecurity; SMEs, Trusted IT Ecosystems
- X. **GHOST:** IoT; Home Appliances; Consumers; Cybersecurity; Privacy & Trust
- XI. **INTERCONNECT:** Smart Homes, Buildings & Grids; Energy Management
- XII. **STAR:** Manufacturing; Human-Centric Digital Twins; Explainable AI
- XIII. **SYNERGIES:** Consumer-inclusive Energy Data Space towards the Energy Transition
- XIV. **TAS-S:** Trustworthy Autonomous Systems Security
- XV. **TWINAIR:** Digital Twins Enabled Indoor Air Quality Management for Healthy Living
- XVI. **TWINERGY:** Energy Prosumers & Communities; Digital Twins & Energy Markets

## 1. AGRICAPTURE: Developing Earth-Observation Powered Services to Promote Soil Carbon Sequestration through Regenerative Agriculture

**Role:** Partner

**Keywords:** Earth observation, geo-information and spatial data analysis, sustainability, downstream industry, soil carbon sequestration, regenerative agriculture.

**Societal challenges:** SC1 (Abundance & Scarcity), SC2 (Circular Economy), SC3 (Climate & Sustainability), SC 5 (Farming & Food), SC9 (Resilience (Climate, Community & Cyber)).

**SDGs:** SDG9 (Industry, Innovation & Infrastructure), SDG11 (Sustainable Cities & Communities), SDG12 (Responsible Consumption & Production), SDG13 (Climate Action), SDG15 (Life on Land) & SDG17 (Partnerships for the Goals).

**Brief Description:** Developing and commercialising a platform that facilitates large-scale zero emission aspirations, through empowering Reg Agri as well as measuring and monitoring resulting Soil C sequestration is the overall objective of AgriCapture. The project's vision is to develop a systematic, robust and flexible platform for quantifying and promoting soil C capture, allowing farmers and other landowners to become 'carbon farmers'. This will be accomplished through a co-creation approach with target users – agri-cooperatives, an agri-processor, a Reg Agri certifier, and an emission balance certifying organisation – within 5 diverse use cases located across Europe. To support uptake of project results, the project will establish a European Reg Agri Community, which will be used to raise awareness of Reg Agri as a high-potential approach to meeting climate pledges, to coordinate and empower farmers as agents of climate mitigation, and to inform product launch of AgriCapture through first-hand market information and a direct channel to potential customers. The project will also undertake activities to assess, identify and proactively pursue market opportunities to transition to a commercial service.

## 2. AI4PublicPolicy: Automated, Transparent Citizen-Centric Public Policy Making based on Trusted Artificial Intelligence

**Role:** Partner

**Keywords:** Explainable tech, citizen participation, transparency and trustworthiness.

**Societal challenges:** SC4 (Demographics) & SC7 Inclusion (Social, Digital & Financial).

**SDGs:** SDG9 (Industry, Innovation & Infrastructure), SC10 (Reduced Inequalities), SDG11 (Sustainable Cities & Communities) & SDG17 (Partnerships for the Goals).

**Brief Description:** AI4PublicPolicy is a joint effort of policy makers and Cloud/AI experts to leverage AI's potential for automated, transparent and citizen-centric development of public policies. For this purpose, the project will deliver, validate, demonstrate and promote a novel Open Cloud platform (i.e. AI4PublicPolicy platform) for automated, scalable, transparent and citizen-centric policy management based on unique AI technologies. The AI4PublicPolicy platform will provide fully-fledged policy development/management functionalities based on AI technologies while leveraging citizens' participation and feedback. It will support the entire policy development lifecycle, based on technologies for the extraction, simulation, evaluation and optimization of interoperable and reusable public policies, with emphasis on citizen-centric policies development and optimization through the realization of citizen-oriented feedback loops. AI4PublicPolicy will complement public policy development functionalities with the ever-important process reengineering and organization transformation activities towards ensuring the effective transition from legacy policy development models to emerging AI-based policy making. AI4PublicPolicy involves 15 partners from various countries such as Italy, the Netherlands, Cyprus, Czech Republic, Portugal and Greece.

### 3. AVENUE: Autonomous Vehicles to Evolve to a New Urban Experience

**Role:** Advisory Board Member

**Keywords:** Disruptive public transportation, safety, emission-free models, sharing economy.

**Societal challenges:** SC4 (Demography), SC3 (Climate & Sustainability), SC7 (Mobility & Logistics) & SC9 (Safety & Security (Physical, Cyber-Physical & Cyber)).

**SDGs:** SDG9 (Industry, Innovation & Infrastructure), SDG11 (Sustainable Cities & Communities), SDG12 (Responsible Consumption & Production), SDG13 (Climate Action), SDG16 (Peace, Justice & Strong Institutions) & SDG17 (Partnerships for the Goals).

**Brief Description:** Public transport is a key element in the economic development of a region and the quality of life of its citizens. With the advances in technology, AVENUE aims at demonstrating that autonomous vehicles will be a key element of the solution for public transport in the future. In AVENUE's vision for the future public transport in urban and sub-urban environments autonomous vehicles will ensure the safe, rapid, economic, ecological and personalised transport of passengers, minimizing vehicle changes, picking them at their doorstep and depositing them as close as possible to their destination. AVENUE targets the creation of disruptive public transport services aiming for setting up a novel model of public transport based on on-demand environmentally friendly personalised public transport available anytime anywhere and making use of the most convenient transport means.

### 4. ASCAPE: Artificial Intelligence Supporting Cancer Patients across Europe

**Role:** Partner

**Keywords:** Quality of life, cancer care prediction, accountability, health economic data, sustainability.

**Societal challenges:** SC4 (Demography), SC6 (Healthy Living (Health, Care & Cure)) & SC12 (Water & Sanitation).

**SDGs:** SDG3 (Good Health & Well-Being), SDG9 (Industry, Innovation & Infrastructure) & SDG17 (Partnerships for the Goals).

**Brief Description:** ASCAPE project aims at capitalising on recent technological advances in Big Data, artificial intelligence (AI) and machine learning in order to help improve the quality of life of patients suffering from cancer. The project will create an open AI infrastructure for health stakeholders such as hospitals. New knowledge produced by this process will be sent back to the open AI infrastructure to be shared among everyone while the medical data will still remain private. The services to be designed and deployed by the project will include intelligent interventions for physiological and psychological support, improved patient and family counselling and guidance, early diagnosis and forecasts of ill health, identification of disease trajectories and relapse, as well as improved health literacy. ASCAPE includes partners from Greece, the United Kingdom, Germany, Romania, Luxembourg and others.

## 5. CONCORDIA: Cyber Security Competence for Research and Innovation

**Role:** Partner

**Keywords:** Resilience, diversity, community, accountability.

**Societal Challenges:** SC7 (Inclusion(Social, Digital & Financial)), SC10 (Safety & Security( Physical, Cyber-Physical & Cyber)), SC11 (Skills & Jobs).

**SDGs:** SDG5 (Gender Equality), SDG 4 (Quality Education), SDG 8 (Decent Work & Economic Growth), SDG9 (Industry, Innovation & Infrastructure) SDG16 (Peace, Justice & Strong Institutions) & SDG17 (Partnerships for the Goals).

**Brief Description:** To reconquer Europe's digital sovereignty and to address the current fragmentation of security competence in the EU is the broader objective of project CONCORDIA. It focuses on cybersecurity by bridging expertise from academia and research to provide best for the existing and emerging threats. The vision of CONCORDIA is to build a community a strong cooperation between all stakeholders, understanding that all stakeholders have their KPIs, bridging among them, and fostering the development of IT products and solutions along the whole supply chain. Technologically, it projects a broad and evolvable data-driven and cognitive E2E Security approach for the ever-complex ever-interconnected compositions of emergent data-driven cloud, IoT and edge-assisted ICT ecosystems. For the project, Arthur's Legal Strategies & Systems is collaborating with organisations from several countries including Luxembourg, Slovenia, Switzerland, Italy, Israel, France, Romania, Spain, Sweden and Norway.

## 6. DIGICIRC: European Cluster-led Accelerator for Digitisation of the Circular Economy across Key Emerging Sectors

**Role:** Partner

**Keywords:** Circular Economy, SME Accelerator, Circular Cities, Blue Economy, Bioeconomy, Cluster Collaboration, Open Innovation.

**Societal challenges:** SC1 (Abundance & Scarcity), SC2 (Circular Economy), SC3 (Climate & Sustainability), SC5 (Farming & Food), SC8 (Mobility & Logistics), SC9 (Resilience (Climate, Community & Cyber)), SC11 (Skills & Jobs), SC12 (Water & Sanitation).

**SDGs:** SDG6 (Clean Water & Sanitation), SDG7 (Affordable & Clean Energy), SDG8 (Decent Work & Economic Growth), SDG9 (Industry, Innovation & Infrastructure), SDG11 (Sustainable Cities & Communities), SDG12 (Responsible Consumption & Production), SDG13 (Climate Action), SDG14 (Life Below Water), SDG15 (Life on Land) & SDG17 (Partnerships for the Goals).

**Brief Description:** In line with the targets and ambitions set out by the EU Circular Economy policies and to encourage Europe's transition to a circular and climate-neutral economy, DigiCirc aims at empowering SMEs to leverage digital technology as a key enabler for innovative circular products/services, processes and business models. To this end, DigiCirc will create and coordinate the DigiCirc innovation network, facilitated by an engagement campaign of 3 partner clusters, to bring together a wide-spectrum of 'triple-helix' stakeholders i.e. local/ regional authorities, big industry actors, SMEs, RTOs, civil society, etc.. Moreover, the project will focus on 3 strategic high-growth domains - Circular Cities, Bioeconomy, Blue Economy. DigiCirc will involve partners from France, Finland, Malta, Italy, Ireland, Greece, the Netherlands, Portugal and others.

## 7. FORTIKA: Cyber Security Accelerator for trusted SMEs IT Ecosystems

**Role:** Advisory Board Member

**Keywords:** Risk identification & mitigation, trust, accountability, resilience, holistic security.

**Societal challenges:** SC7 (Inclusion(Social, Digital & Financial) & SC10 (Safety & Security(Physical, Cyber-Physical & Cyber).

**SDGs:** SDG9 (Industry, Innovation & Infrastructure), SDG16 ( Peace, Justice & Strong Institutions) & SDG17 (Partnerships for the Goals).

**Brief Description:** Cyber threats comprise a major risk for (European) businesses especially SMEs that mostly ill-prepared to defend themselves, their digital assets and their client's data and privacy against cyber threats compared to large enterprises. This is where the opportunity lies and where the FORTIKA concept fits best: the proposed hybrid solution (hardware – software) will consist of a security 'seal' for micro, small and medium-sized enterprises that will reinforce trust and facilitate further adoption of digital technologies, strengthening this way their position compared to the non-European competition. To accomplish this ambition, FORTIKA industry partners will roll-out to the market a new generation of cyber-security products and related services based upon the results of the proposed innovation action. The project will work towards more robust, resilient and effective cybersecurity solutions that can be effortlessly tailored to each individual enterprise's evolving needs and can also speedily adapt/respond to the changing cyber threat landscape.

## 8. GHOST: Safe-Guarding Home IoT Environments with Personalised Real-time Risk Control

**Role:** Advisory Board Member

**Keywords:** Trust, home security, personalised real-time risk control, decentralised self-defence.

**Societal challenges:** SC7 (Inclusion (Social, Digital & Financial)) & SC10 (Safety & Security(Physical, Cyber-Physical & Cyber)).

**SDGs:** SDG9 (Industry, Innovation & Infrastructure), SDG16 (Peace, Justice & Strong Institutions) & SDG17 (Partnerships for the Goals).

**Brief Description:** To deliver the first generation of disruptive software-enabled usable security network solution to improve security and privacy in a Digital Home connected to Internet of Things. GHOST cutting-edge technology will increase the level and the effectiveness of automation of existing cybersecurity services, enhance system self-defence and will open up the cybersecurity 'blackbox' to consumers and build trust through advanced usable transparency tools derived from end-users' mental models. GHOST envisions a transparent cybersecurity environment for all Europeans living in a connected world: with minimal effort consumers will become aware and understand the cybersecurity risks (threats and vulnerabilities) and will take informative decisions affecting their cyber-physical security and privacy.

## 9. INTERCONNECT: Interoperable Solutions Connecting Smart Homes, Buildings and Grids

**Role:** Advisory Board Member

**Keywords:** Effective energy management, resilient ecosystems, co-creation

**Societal challenges:** SC1 (Abundance & Scarcity), SC3 (Climate & Sustainability) & SC7 (Inclusion (Social, Digital & Financial)).

**SDGs:** SDG7 (Affordable & Clean Energy), SDG8 (Decent Work & Economic Growth), SDG9 (Industry, Innovation & Infrastructure), SDG11 (Sustainable Cities & Communities) & SDG12 (Responsible Consumption & Production).

**Brief Description:** INTERCONNECT proposes effective energy management using a resilient and practical ecosystem that is user-centric and market-driven. The project focuses on bridging the gap between the smart homes, buildings and smart grid through a widespread interoperability ecosystem, interlinking several stakeholders like end-users, manufacturers, system integrators, smart grid operators and services providers. The project departs from the definition of the main energy and non-energy business use-cases, upon which a common architecture for smart homes, smart building and smart grids will be established to allow different services and marketplaces to be exploited. The project will create interoperability procedures that allows business stakeholders to receive a certificate of compliance that guarantees that their systems are easily and seamlessly integrated in different technical and regulatory contexts and domains.

## 10. STAR: Safe and Trusted Human Centric Artificial Intelligence in Future Manufacturing Lines

**Role:** Partner

**Keywords:** Manufacturing process simulation, active learning, human-centric digital twins.

**Societal challenges:** SC4 (Demography), SC8 (Mobility & Logistics) & SC10 (Safety & Security).

**SDGs:** SDG3 (Good Health), SDG8 (Decent Work & Economic Growth), SDG 9 (Industry, Innovation & Infrastructure) & SDG 17 (Partnerships for the Goals).

**Brief Description:** AI systems in industrial plants must be safe, trusted and secure, even when operating in dynamic, unstructured and unpredictable environments. STAR is a joint effort of AI and digital manufacturing experts towards enabling the deployment of standard-based secure, safe reliable and trusted human centric AI systems in manufacturing environments. STAR will research and make available to novel technologies that will enable AI systems to acquire knowledge in order to take timely and safe decisions in dynamic and unpredictable environments. Moreover, it will research technologies that enable AI systems to confront sophisticated adversaries and to remain robust against security attacks. STAR will eliminate security and safety barriers against deploying sophisticated AI systems in production lines. The results will be fully integrated into existing EU-wide initiatives (EFFRA, AI4EU), as a means of enabling researchers and the European industry to deploy and leverage advanced AI solutions in production lines. The project includes partners from 11 countries including Belgium, Slovenia, Switzerland, France, the United Kingdom and Germany.

## 11. TwinERGY: Intelligent Interconnection of Prosumers in Positive Energy Communities with Twins of Things for Digital Energy Markets

**Role:** Partner

**Keywords:** Energy management, energy behaviour, engagement, standardization, community.

**Societal challenges:** SC4 (Demography), SC3 (Climate & Sustainability) & SC7 (Inclusion (Social, Digital & Financial)).

**SDGs:** SDG7 (Affordable & Clean Energy), SDG8 (Decent Work & Economic Growth), SDG 9 (Industry, Innovation & Infrastructure), SDG11 (Sustainable Cities & Communities), SDG12 (Responsible Consumption & Production) & SDG 17 (Partnerships for the Goals).

**Brief Description:** TwinERGY will introduce a first-of-a-kind Digital Twin framework that will incorporate the required intelligence for optimizing demand response at the local level without compromising the well-being of consumers and their daily schedules and operations. TwinERGY will develop, configure and integrate an innovative suite of tools, services and applications for consumers, enabling increase of awareness and knowledge about consumption patterns, energy behaviours, generation/ demand forecasts and increase of local intelligence via properly established Digital Twin-based Consumer-Centric Energy Management and Control Decision Support mechanisms that locally optimize demand response.

## 12. BEYOND: Innovative Data Sharing-driven Energy Service Ecosystems for Building & Beyond

**Role:** Advisory Board Member

**Keywords:** Data-sharing, energy transition, building sector, AI & data analytics, cross-cutting.

**Societal challenges:** SC3 (Climate & Sustainability), SC4 (Demography) & SC7 (Inclusion (Social, Digital & Financial)).

**SDGs:** SDG7 (Affordable & Clean Energy), SDG8 (Decent Work & Economic Growth), SDG 9 (Industry, Innovation & Infrastructure), SDG11 (Sustainable Cities & Communities), SDG12 (Responsible Consumption & Production) & SDG 17 (Partnerships for the Goals).

## 13. SYNERGIES: Shaping consumer-inclusive data pathways towards the eNERGY transition, through a reference Energy data Space implementation

**Role:** Partner

**Keywords:** Data-driven, energy transition, data spaces, consumer-inclusivity, cross-cutting.

**Societal challenges:** SC3 (Climate & Sustainability), SC4 (Demography) & SC7 (Inclusion (Social, Digital & Financial)).

**SDGs:** SDG7 (Affordable & Clean Energy), SDG8 (Decent Work & Economic Growth), SDG 9 (Industry, Innovation & Infrastructure), SDG11 (Sustainable Cities & Communities), SDG12 (Responsible Consumption & Production) & SDG 17 (Partnerships for the Goals).

**Brief Description:** SYNERGIES brings forward a reference Energy Data Space Implementation that will attempt to unleash the data-driven innovation and sharing potential across the energy data value chain by leveraging on data and intelligence coming from diverse energy actors (prioritizing on consumers, but also introducing the stakeholders of the whole value chain as data owners and/or providers), as well, from interrelated and coupled sectors (buildings and mobility) and effectively making them reachable and accessible by all interested actors. In turn, it will facilitate the transition from current siloed data management approaches to collaborative ones which promote the creation of a data and intelligence ecosystem around energy (and other types of) data and enable the realization of data (intelligence)-driven innovative energy services that (i) value the flexibility capacity of the demand side (prosumers) in optimizing energy networks' operation and/ or maximizing integration and self-consumption at different levels of the system (community, building), (ii) support network operators in optimally monitoring, operating, maintaining their infrastructures for enhancing system resilience, (iii) create an inclusive pathway towards the energy transition, through prosumer empowerment, awareness and informed involvement in energy/ flexibility market transactions, and (iv) establish the grounds for the creation of a new economy around energy data produced and shared across a complex value chain, in a secure, trustful and fair manner.

## 14. TwinAIR: Digital Twins Enabled Indoor Air Quality Management for Healthy Living

**Role:** Partner

**Keywords:** Indoor Air Quality, energy behaviour, engagement, standardization, community.

**Societal challenges:** SC6 (Healthy Living), SC4 (Demography), SC3 (Climate & Sustainability), SC7 (Inclusion (Social & Digital)) & SC8 (Mobility)

**SDGs:** SDG3 (Good Health), SDG8 (Decent Work & Economic Growth), SDG 9 (Innovation & Infrastructure), SDG11 (Sustainable Cities & Communities), SDG13 (Climate Action) & SDG 17 (Partnerships for the Goals).

**Brief Description:** TwinAIR aims to improve urban life by tackling the challenge of indoor air quality (IAQ) improvement by understating its complex interrelationship with external factors. This is achieved by introducing a novel set of tools for identifying sources and tracing a variety of pollutants and pathogens, for enhancing understanding of their effects and assessing their impact on health, for controlling building management systems and services in ways that mitigate part of the impacts and for helping citizens to develop better insights into pollution impacts, along with encouraging healthier, more sustainable choices. TwinAIR embraces cutting edge innovation in urban sensing (chemical and environmental sensors), data analytics and visualisation (digital maps and real-time video analysis), smart buildings (digital twins and virtual sensors) and behavioural insights (citizen participation, gamification) to deliver a nascent solution. It is implemented across six (6) diverse pilot sites in Europe (Sweden, Spain, Greece, Ireland, Germany & United Kingdom) with demonstrations covering residential dwellings, public administration buildings, hospitals and schools, along with selected types of vehicles (buses,vans).TwinAIR's toolsets will empower students and their parents, commuters, workers and residents to make more health-aware personal decisions about their everyday mobility options and use of indoor spaces, through access to insightful analytics and engaging visualisations of their data, as well as by their participation in educational events and activities. At the same time, it will provide rich evidence to transport planners, facility managers and policymakers about factors influencing IAQ and effective interventions for mitigating its effects on health and wellbeing. By democratising cutting edge innovation in sensors, digital twinning and visual analytics.

# Intertwined Societal Challenges

It is not hard to make decisions once you know what the various values are

**SC1 Abundance & Scarcity**

**SC2 Circular Economy**

**SC3 Climate & Sustainability**

**SC4 Demography**

**SC5 Farming & Food**

**SC6 Healthy Living** (Health, Care & Cure)

**SC7 Inclusion** (Social, Digital & Financial)

**SC8 Mobility & Logistics**

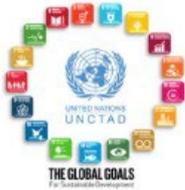
**SC9 Resilience** (Climate, Community & Cyber)

**SC10 Safety & Security** (Physical & Cyber-Physical)

**SC11 Skills & Jobs**

**SC12 Water & Sanitation**

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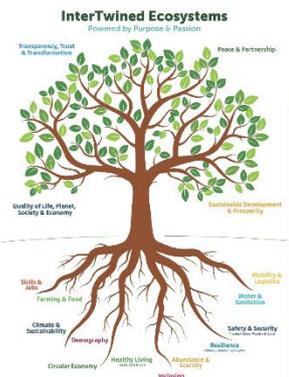


## THE GLOBAL GOALS For Sustainable Development



2030 Sustainable Development Agenda adopted in September 2015 (UN RES/70/299). These 17 SDGs contain 169 Targets.

<https://sustainabledevelopment.un.org>



Supporting your great capabilities to improve, while adding merit to the symbiosis of your stakeholders, society and planet.

There is always another angle



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