

EU-funded scientists unveil first ever image of a black hole

The [first ever observation](#) of a black hole is the result of the large scale international research collaboration [Event Horizon Telescope](#) (EHT), where EU-funded researchers have played a key role. This major scientific achievement marks a paradigm shift in our understanding of black holes, confirms the predictions of Albert Einstein's General Theory of Relativity and opens up new lines of enquiry into our universe. The first image of a black hole successfully captured was unveiled in six simultaneous press conferences across the globe today.

Commissioner Carlos **Moedas**, responsible for Research, Science, and Innovation, said: *"Fiction often inspires science, and black holes have long fuelled our dreams and curiosity. Today, thanks to the contribution of European scientists, the existence of black holes is no longer just a theoretical concept. This amazing discovery proves again how working together with partners around the world can lead to achieving the unthinkable and moving the horizons of our knowledge."*

President of the European Research Council (ERC), Professor Jean-Pierre **Bourguignon**, added: *"I congratulate the scientists across the globe who made this inspiring discovery and pushed the frontiers of our knowledge. I'm especially glad to see that scientists funded by the European Research Council contributed decisively to this breakthrough. The EU's bold approach to funding such paradigm-shifting blue-sky research leads once more to a success story. It also further validates the ERC's objective to fund high-risk/high-gain research."*

EU funding through the European Research Council (ERC) has provided crucial support to the EHT. In particular, the EU has provided funding for three of the leading scientists and their teams involved in the discovery, as well as supported the development and upgrading of the large telescope infrastructure essential to the success of the project.

Today's results add to the [many achievements](#) of the EU's research and innovation funding programmes Horizon 2020 and its predecessor Framework Programmes. Building on this success, the Commission has proposed [Horizon Europe](#), the most ambitious EU programme yet to keep the EU at the forefront of global research and innovation.

BACKGROUND

Black holes are extremely compressed cosmic objects, containing incredible amounts of mass within a tiny region. Their presence affects their surroundings in extreme ways, by warping spacetime and super-heating any material falling into it. The captured image reveals the black hole at the

centre of Messier 87, a massive galaxy in the constellation of Virgo. This black hole is located 55 million light-years from Earth and has a mass 6.5-billion times larger than our sun.

To allow the direct observation of a black hole's immediate environment, the [Event Horizon Telescope](#) has sought to upgrade and connect a worldwide network of eight telescopes across the globe. These are located at challenging high-altitude sites, including in the Spanish Sierra Nevada, volcanoes in Hawaii and Mexico, mountains in Arizona, the Chilean Atacama Desert, and Antarctica. More than 200 researchers from Europe, Americas and East Asia are participating in this major international operation.

The EU's European Research Council has provided funding to scientists involved in the EHT collaboration through the following projects under the EU's Horizon 2020 and 7th Framework Programme:

- The €14 million [BlackHoleCam](#) project which aims at capturing the image, measuring and understanding black holes. Since 2014, this six year research project is being carried out by three lead scientists and their teams; namely Professors Heino Falcke from Radboud University Nijmegen (also Chair of EHT Science Council), Michael Kramer from the Max Planck Institute for Radioastronomy, and Luciano Rezzolla from Goethe University Frankfurt.
- The [RadioNet](#) project supports a consortium of 27 institutions in Europe, the Republic of Korea and South Africa that aim to integrate world-class infrastructures for research in radio astronomy. This includes radio telescopes, telescope arrays, data archives and the globally operating European Network for Very Long Baseline Interferometry (EVN). The project is coordinated by the Max Planck Institute for Radioastronomy. In the past 15 years, the EU invested €30.3 million in RadioNet.

The European Research Council, set up by the EU in 2007, is the premiere European funding organisation for excellent frontier research. Every year, it selects and funds the very best, creative researchers of any nationality and age, to run projects based in Europe. The ERC offers four core grant schemes: Starting, Consolidator, Advanced and Synergy Grants. With its additional Proof of Concept grant scheme, the ERC helps grantees to bridge the gap between grantees' pioneering research and early phases of its commercialisation.

FOR MORE INFORMATION

[Black hole photos and videos on Commission's audio-visual portal](#)

[Event Horizon Telescope press release](#)

[European Commission press conference on Europe by Satellite](#)

[European Commission press conference on EUtube](#)

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ESAs publish Joint Advice on Information and Communication Technology risk management and cybersecurity

Regarding **the need for legislative improvements**, in developing the Joint Advice the ESAs' objective was that every relevant entity should be subject to clear general requirements on governance of ICT, including cybersecurity, to ensure the safe provision of regulated services. Guided by this objective, the proposals presented in the Advice aim at promoting stronger operational resilience and harmonisation in the EU financial sector by applying changes to their respective sectoral legislation. Incident reporting is highly relevant to ICT risk management and allows relevant entities and authorities to log, monitor, analyse and respond to ICT operational, ICT security and fraud incidents. Therefore, the ESAs call for streamlining aspects of the incident reporting frameworks across the financial sector. Furthermore, the ESAs suggest that a legislative solution for an appropriate oversight framework to monitor the activities of critical third party service providers should be considered.

Regarding the **costs and benefits of a coherent cyber resilience testing framework**, the ESAs see clear benefits of such a framework. However, at present there are significant differences across and within financial sectors as regards the maturity level of cybersecurity. In the short-term, the ESAs advise to focus on achieving a minimum level of cyber-resilience across the sectors, proportionate to the needs and characteristics of the relevant entities. Furthermore, the ESAs propose to establish on a voluntary basis an EU wide coherent testing framework together with other relevant authorities taking into account existing initiatives, and with a focus on Threat Lead Penetration Testing (TLPT). In the long-term, the ESAs aim to ensure a sufficient cyber maturity level of identified cross-sector entities.

To implement the proposed actions, the ESAs highlight the required legal basis and explicit mandate, which is necessary for the development and implementation of a coherent resilience testing framework across all financial sectors by the ESAs in cooperation with other relevant authorities.

Background

The European Commission's March 2018 [FinTech Action Plan](#) specifically

requests the ESAs:

- To map, by Q1 2019, the existing supervisory practices across financial sectors around ICT security and governance requirements, and where appropriate a) to consider issuing guidelines aimed at supervisory convergence and enforcement of ICT risk management and mitigation requirements in the EU financial sector and, b) if necessary, provide the Commission with technical advice on the need for legislative improvements.
- To evaluate, by Q4 2018 (now Q1 2019), the costs and benefits of developing a coherent cyber resilience testing framework for significant market participants and infrastructures within the whole EU financial sector.

Vice-President Valdis Dombrovskis: Concluding remarks at the Conference on the Future of Work

Ladies and gentlemen,

I'd like to warmly thank today's participants for the insightful discussion about the future of work.

One clear message from the Conference is that 'the future of work is already today'.

This means that when we talk of the 'future of work', if we want to be correct in our English grammar, we should really be speaking about the 'present continuous of work'.

It's not a question of saying 'labour markets will change'. Rather, it's already clear that our labour markets 'are changing'.

And the 'future'? It's about how we manage this transition.

Here are some facts about the present: Ten years ago, 67% of Europeans worked in the services sector. Today, it is 72%. Ten years ago, 36 million Europeans worked part time. Today, 41 million do. Over the same time period, the number of workers on temporary contracts has increased by nearly 2 million.

Now for the continuous: Some jobs will be lost. Nearly one in ten jobs could be fully replaced by automation, if the newest technology is adopted. And a much larger share of 'tasks' – around 50% – could be automated, as part of this same ongoing transition. At the same time, new jobs will be created as well.

This means almost everyone's work is being affected, in one way or another.

We want to avoid a future in which change comes at the expense of creating "winners" and "losers". And the way to do this is by keeping our social model fit for purpose.

Making the European social model fit for the challenges of the 21st century is precisely the thinking behind the European Pillar of Social Rights. The Pillar sets out the rights and principles that can empower people to manage change successfully. It also provides a framework for future-proofed policies and institutions at EU and national level.

We are, after all, in the seventh consecutive year of economic growth. Public finances and investment continue to improve as a result. Employment is at record levels and the unemployment rate is back to where it was before the crisis. The share of people at risk of poverty or social exclusion has fallen to below pre-crisis levels too.

Yet we know that sunny weather never lasts forever. We need to use these good times to prepare for longer term challenges: the resilience of our economies, the sustainability of public budgets, and the social priorities that demand ever more attention.

With this in mind, I would like to highlight three themes that clearly emerged across the sessions today on how to manage successfully the changing world of work: Adaptability, Fairness and Cooperation.

Adaptability is needed because of the high degree of uncertainty about how exactly the work will continue to evolve. After all, we don't know what tomorrow's disruptive technologies will bring. But on one point we can be fairly certain:

Human workers will be needed to do things robots cannot – think laterally; interact socially and; plan strategically. In every way, work will be more dynamic, varied and interesting. Most of all, workers will need to adapt to constant change. And for this, they will need a skillset that continues to evolve at the same pace as the world of work changes.

So it's no coincidence that the very first principle of the European Pillar of Social Rights is on education, training and life-long learning.

We're delivering on this through the Skills Agenda, which is about anticipating future skills, ensuring people can acquire them and guaranteeing that everyone has access to first-rate education and training.

Adaptability is also important when it comes to social protection. Today, Europe's social protection systems are still largely geared towards full-time open-ended work contracts. Other groups of workers and the self-employed are less well covered. As we just heard it's still hotly discussed among Social Partners. Such workers already represent 40% of the EU's workforce, and this number is expected to grow.

Job mobility is also increasing: from holding maybe one or two jobs over a

career span, soon workers might change jobs more than 10 times.

As was said today, what's important is that everyone is covered by social protection and, reversely, contributes to the system, no matter what the working relationship is, no matter what career choices people make.

This is the thinking behind the new Council Recommendation on Access to Social Protection, agreed in December.

Another point on adaptability is how workers can combine their professional and private lives. More than ever before, people are seeking ways to combine work, leisure and family responsibilities.

This is something we target with our new Work Life Balance Initiative, including a Directive that will improve working parents' and carers' conditions, and lead to a higher employment rate for women, better earnings and better career progression.

Finally, we need to see how we continue to protect workers' rights and improve working conditions under changing circumstances.

To tackle this, we have proposed and now agreed a Directive on Transparent and Predictable Working Conditions that will enhance the rights of workers, regardless of their contract type, therefore also protecting the most vulnerable ones.

This brings me to the second common theme from today's discussion: fairness. The digital transformation has the potential to increase economic growth. But it must do more than this. It must bring inclusive growth.

That's a serious challenge. We know that change can risk leaving some people behind, especially the low-skilled and those who belong to disadvantaged groups.

Already today, the richest 20% in some Member States earn more than 6,5 times as much as the poorest 20%.

High income inequality undermines social cohesion. And it also hurts growth, for example when children cannot reach their full potential because their parents can't provide them with quality education.

So how do we manage this?

One way is through investment in quality social services, especially for families. We also need effective and timely active labour market policies. Improving how we match workers to new employment opportunities is especially important in times of rapid change.

Next, we must ensure that work truly pays. This means reducing the tax wedge – and particularly for low earners – by shifting taxation from labour to other tax bases that are less detrimental to growth.

Above all, the key is to keep Europe on the path of upward convergence. It is

by winning this 'race to the top' that we can enhance economic and social cohesion across the EU.

This spirit is reflected in the Commission's proposal for the next Multiannual Financial Framework, on which we should find an agreement as soon as possible.

Specifically, the proposed European Social Fund Plus, with up to €101 billion in funding, should help us address EU social challenges of today and tomorrow, including those arising from new technology such as automation and the related new forms of work.

The final cross-cutting theme that came out of today's discussions is cooperation. As was already made clear, we cannot expect to succeed if we act on only one level, or in only one country, at a time.

One important element is to have well-functioning social dialogue, something the European Commission has put great emphasis on. Effective policymaking relies on inputs from social partners not only to help identify solutions, but also to implement them. We need to ensure social dialogue remains relevant and effective in this, the new reality.

Cooperation and coordination are also needed for sustainable and effective economic governance. This is at the heart of the European Semester. This year we are also improving the link between the national reform priorities and EU funding instruments, to support implementation on the ground.

To conclude, allow me to thank you once again for your constructive contributions. As we heard today, the discussion will be taken forward at the centenary of the International Labour Organisation. The idea the ILO embodies – that peace and prosperity can only be built on social justice – has been one of the most compelling conclusions of the past century. Indeed, this idea found concrete expression in the European social model, and the social market economy developed in the 20th Century.

The world of work is changing. In terms of English grammar, we might say this challenge is both 'present' and 'continuous'. As regards the future, we will need adaptability, fairness and cooperation, if we are to ensure the European social model continues serving economic growth, high living standards and good working conditions for all.

[EU-China Summit: Rebalancing the strategic partnership](#)

President of the European Commission Jean-Claude **Juncker** and President of the European Council Donald Tusk represented the European Union at the Summit.

The People's Republic of China was represented by Premier Li Keqiang. The EU High Representative for Foreign Affairs and Security Policy/Vice-President of the European Commission, Federica **Mogherini**, and European Commission Vice-President for Jobs, Growth, Investment and Competitiveness, Jyrki **Katainen**, also attended the Summit.

*"In today's world, our partnership is more important than ever before. We share the same belief that working together makes the world a stronger, safer and more prosperous place", said President Jean-Claude **Juncker**. "As good friends, we can also be honest with each other when we need to be or when progress is slower than we would like. This honesty and a strong determination to face our challenges together have allowed us to make real progress, reflected in today's Joint Statement. But we can do a lot better. We need to find a better balance and level of reciprocity. Europe wants to trade more and invest more in China but we need rules that allow us to do so. We want to work with China, because we believe in the potential of our partnership."*

The full remarks of President **Juncker** at the press conference following the Summit are available [online](#). The European Union and China have issued a [Joint Summit Statement](#).

A realistic, assertive and multi-faceted EU approach

While China's economic and political influence makes it a vital partner for the European Union, as well as vice-versa, there is a growing appreciation in Europe that the **balance of challenges and opportunities** presented by China has shifted. In line with last month's [Joint Communication on China](#) and the discussion among EU leaders at the [March European Council discussion](#), the EU pursues a realistic and multi-faceted approach with a view to ensuring fair, balanced and mutually-beneficial relations. The EU will work for a more balanced economic relationship with China while at the same time pursue deeper engagement on global and multilateral issues, including reform of the World Trade Organisation.

In addition to the [Joint Summit Statement](#), which demonstrates the breadth and depth of EU-China cooperation, a number of other concrete deliverables were agreed at the Summit, including:

- a [Memorandum of Understanding](#) on a dialogue in the area of the **state aid control** regime and the Fair Competition Review System;
- an Agreement on the [Terms of Reference](#) of the **EU-China Competition Policy Dialogue**;
- a [Joint Statement](#) on the Implementation of the EU-China **Cooperation on Energy**;
- [Terms of Reference](#) for a Joint Study to identify the most **sustainable railways-based transport corridors** between Europe and China.

Preserving the international rules-based trade system and enhancing bilateral trade and investment

At the Summit, the EU and China confirmed their firm support to the rules-based, transparent, non-discriminatory, open and inclusive multilateral trading system with the World Trade Organisation (WTO) at its core. Building on the work of the joint working group on WTO reform established at [last year's summit](#), they will intensify discussions with a view to strengthening international rules on industrial subsidies.

The shared objective of equitable and mutually beneficial cooperation in bilateral trade and investment was one of the key topics discussed. The EU and China reiterated their willingness to provide each other with broader, non-discriminatory market access. With this in mind, the parties will work expeditiously on a number of key market access barriers ahead of the next EU-China Summit.

Progress was also made on the ongoing **Investment Agreement negotiations**, a top priority for maintaining an open, predictable, fair and transparent business environment for European and Chinese investors. The Leaders committed to achieving decisive progress to conclude the negotiations in 2020. In this regard, they also established a political mechanism to continuously monitor the progress in the negotiations.

With a provisional agreement reached on the text of the agreement on **Geographical Indications** (GIs) and on the protection for the majority of GI names, Leaders committed to work together to resolve the remaining issues to conclude the negotiations in 2019. The EU and China agreed that steel overcapacity remains a global challenge that requires collective responses. To this end, the EU and China will maintain communication in the Global Forum on Steel Excess Capacity, ahead of a substantive report by June 2019.

The EU and China have signed a **Memorandum of Understanding on a dialogue in the area of the State Aid Control and the Fair Competition Review**, reconfirming a [Memorandum of Understanding signed in 2017](#). The **State aid dialogue** is a mechanism of consultation, cooperation and transparency between China and the EU in the field of State aid control. This dialogue will further the EU and China's mutual interest and joint work to promote fair global competition. It is also part of the Commission's broader strategy to address the distortion that national subsidies policies put on a global level playing field where companies can compete on their merits. The **Agreement on the Terms of Reference of the EU-China Competition Policy Dialogue**, also agreed today, will replace two earlier documents signed by the EU and China in order to facilitate requests to investigate alleged anti-competitive behaviour. The Agreement acknowledges that the EU and China share a common interest to minimise any potentially adverse effects of enforcement activities on each other's interests.

Tackling global and regional challenges together

Beyond trade and investment, China has a responsibility to contribute to a rules-based global order, which can be decisive for ensuring effective multilateral responses to global challenges. EU-China cooperation has already proven crucial, from the fight against climate change to upholding the Joint Comprehensive Plan of Action on Iran's nuclear programme.

Following the [High-Level Strategic Dialogue](#), co-chaired by the High Representative/Vice-President, Federica **Mogherini** and Chinese State Counsellor, Wang Yi, as well as the [discussion between EU Foreign Ministers](#) and State Counsellor Wang on EU-China relations on 18 March, leaders held fruitful discussions on **foreign and security cooperation** and the situation in their respective neighbourhoods. Ways to support a peaceful solution on the Korean Peninsula; the continued, full and effective implementation of the Iran nuclear deal; joint, coordinated work on the peace process in Afghanistan; and the situation in Ukraine were all addressed. Leaders also discussed other foreign and security challenges, such as in Venezuela and Africa.

The EU recalled the importance of the application of international law and cooperation against malicious **cyber activities**, including on ICT-enabled theft of intellectual property, for an open, stable and secure cyberspace. The Summit also recognised that 5G networks will provide the backbone for future economic and social development. On 26 March, the [Commission recommended](#) that when deploying 5G networks all Member States conduct a thorough risk assessment and take the appropriate security measures. The [recommendation](#) also aims at building an EU coordinated approach to both risk assessment and management. It does not target specific companies or countries.

With the protection and improvement of **human rights** at the very core of the European Union and its global partnerships, Leaders also addressed such issues, one week after the EU and China held their [latest Human Rights Dialogue](#).

Leaders discussed the huge potential to further **connect Europe and Asia** in a sustainable manner and based on market principles. Building on the [fourth meeting](#) of the **EU-China Connectivity Platform**, held in the margins of the Summit, the EU and China looked at ways to create synergies between the [EU's approach to connectivity](#), including the [Trans-European Transport Network](#), and China's Belt and Road Initiative. Leaders committed to openness, transparency and a level playing field in the area of infrastructure connectivity, as well as mutually beneficial implementation of the [EU-China Connectivity Platform projects](#). Leaders also welcomed the agreement reached under the Connectivity Platform on the [Terms of Reference](#) for a Joint Study to identify the most **sustainable railways-based transport corridors** between Europe and China.

The EU and China lead the clean energy transition towards meeting the objectives under the **Paris Agreement**. Commissioner for Climate Action and Energy, Miguel **Arias Cañete**, and his Chinese counterpart, Zhang Jianhua, the Administrator of the Chinese National Energy Agency, signed in the margins of the Summit a [Joint Statement on the Implementation of the EU-China Cooperation on Energy](#) that will provide a framework for deepening and

intensifying EU-China energy cooperation. Cooperation will cover the expansion of renewable energy sources, energy efficiency, the development of energy markets and systems, as well as greater involvement for companies in the energy sector based on equal exchange and reciprocal business opportunities.

A number of other high-level meetings took place in the margins of the summit, including the [4th Innovation Cooperation Dialogue](#), co-chaired by Carlos **Moedas**, Commissioner for Research, Science and Innovation, and Wang Zhigang, Chinese Minister of Science and Technology. The EU and China will develop a joint roadmap to enrich and balance cooperation in research and innovation, while [the Dialogue](#) also focussed on framework conditions for cooperation, including mutual openness of the respective research and innovation programmes.

The **Regional and Urban Policy Dialogue**, co-chaired by the Commissioner for Regional Policy, Corina **Crețu**, and the Vice-Chairman of the National Development and Reform Commission, Luo Wen, will take place tomorrow. They will discuss ways to enlarge on-going cooperation to innovation, support to start-ups and small and medium businesses, as well as industrial transition. To this end, the EU and China will soon launch a joint study comparing the EU's approach to regional innovation ("[smart specialisation](#)") and relevant innovation strategies from China, to identify areas of future cooperation in this field.

Further Information

[Joint Statement of the 21st EU-China Summit](#)

[Remarks of President Jean-Claude Juncker at the press conference following the 21st EU-China Summit](#)

[EU-China Summit website](#)

[EU-China relations factsheet](#)

[Delegation of the European Union to China website](#)

[Joint statement on ensuring Europe's digital future](#)

At [Digital Day 2019](#), participating Ministers and representatives of the EU confirmed their full commitment to work more closely in key areas where digital technologies will make a significant impact in the coming years.

European Commission Vice-President Andrus **Ansip**, Commissioners Tibor **Navracsics**, Phil **Hogan** and Mariya **Gabriel** welcomed the commitments from European countries to step up cooperation on the digitalisation of cultural heritage, digitalisation of agriculture and rural areas, and promoting greater participation of women in digital. They said in a joint statement:

"We are delighted to see that so many EU Member States are committing to advance digital cooperation in these areas. 26 European countries signed today the Declaration to increase women's visibility and empowerment in the digital economy. 24 Member States pledged to pool efforts and resources for a smart and sustainable future for European agriculture and rural areas. And 24 European countries opted for closer cooperation in digitising cultural heritage.

Digital technologies have the potential to improve the quality of life in rural areas by tackling important economic, social and environmental challenges, and help to preserve Europe's rich cultural heritage and make it accessible to everyone. In view of this, it is important that these developments are inclusive.

Joining forces is essential to build a digital future for Europe and we need to act quickly on all fronts, as the demand for good connection, relevant competences and access to the online world is growing rapidly in all sectors. We can achieve a functioning Digital Single Market only by promoting digitisation and tearing down barriers together.

We encourage the participating countries to follow up on their commitments with swift actions, and are ready to support them. We hope that this year's Declarations will result in similarly tangible results as those agreed on in previous years – for example on boosting the EU's joint efforts on supercomputing in 2017 and on artificial intelligence in 2018."

Background

Today at the [Digital Day 2019](#), EU Member States signed three Declarations to pool efforts and resources for accelerating digital developments in key areas that can bring tangible benefits to our economies and our societies. The event brought Member States and EU institutions together with partners from industry, academia and civil society.

The participating Member States signed Declarations of cooperation on:

The Declarations follow the successful cooperation launched in previous editions of the event, e.g. on [artificial intelligence](#) in 2018 and on [supercomputing](#) in 2017.

Highlights of the Digital Day 2019 also included the presentation of the [guidelines for trustworthy artificial intelligence](#) (AI) by the High-Level Expert Group on Artificial Intelligence (see also yesterday's [Commission's Communication on AI](#)), as well as a number of panel discussions, including on the progress of the Digital Single Market.

On Monday, ahead of the Digital Day, stakeholders from the Southern

Mediterranean met to discuss for new ways of working together for connectivity and data at the [Digital4Med](#) conference.

For More Information

[Opening speech by Vice-President Ansip, Digital Day 2019](#)

[Speech by Commissioner Navracsics, Digital Day 2019](#)

[Press release: Digital Day 2019](#)

[Declaration on Digitisation for European Agriculture and rural areas](#)

[Declaration on Digitising Cultural Heritage](#)

[Declaration on Women in Digital](#)

[Factsheet: A Digital Single Market for the benefits of all Europeans](#)

[Timeline: Digital Single Market – Commission actions since 2015](#)

[Ethics Guidelines for Trustworthy Artificial Intelligence](#)

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