50 Ways the West Midlands made its mark

From playing the first game of lawn tennis, inventing the first practical bicycle and pioneering the first automated traffic lights, through to literary heroes such as William Shakespeare, the West Midlands’ innovators, products and ideas have helped drive Britain forward and shape the world.

Planes, Trains and Automobiles

The penny drops
In the mid-1800s, Coventry-born inventor James Starley created the first practical bicycle. Coventry became home to Britain’s first cycle factory, manufacturing the penny-farthing in 1871.

Starley’s influence spread across the West Midlands, with John Richard Dedicoat inventing the bicycle bell in Birmingham some years later.

All aboard VLR
The next generation of tram systems will soon be welcomed to the West Midlands. Engineers and researchers from Warwick Manufacturing Group are developing Very Light Rail – a revolutionary system to make trams more efficient, affordable and autonomous. They could be tested in Coventry and Dudley as early as summer 2019.

A head of steam
In 1712, Thomas Newcomen and his partner, John Calley, built the first fuel-burning engine at the Conygree Coalworks near Dudley. Close to 100 years later, the ‘Catch Me Who Can’ locomotive was demonstrated for the first time in Bridgnorth.

Today, the West Midlands is at the heart of HS2, with the National College for High-Speed Rail training the rail engineers of the future.

In the driving seat
The West Midlands is the centre of UK automotive R&D. Birmingham-based Lucas Industries invented the first car horn, manufacturer Mills Munitions patented the first windscreen wiper and Country engineer Charles Humpherson created car indicators.

Wolverhampton-based inventor Thomas Parker built the first practical electric car, while the Wolverhampton-built Sunbeam motor car became the first vehicle to reach 200mph when it broke the land speed record. Today, Jaguar Land Rover’s car manufacturing plant in Solihull continues to drive automotive ambition.

Magnificent Magnesium
Birmingham City University formed the Magnesium Innovation Group with the world’s largest producer of magnesium die case components, Meridien Lightweight Technologies UK, to address the misconceptions and underuse of magnesium in industry. Its researchers are transforming the future of magnesium by showing its importance to the transport industry – such as aerospace – as a viable alternative to steel or aluminium.
Electric dreams

Coventry is leading the charge in zero-emission machines. Microcab, a spin-out company from Coventry University, develops and manufactures hydrogen fuel cells for use in electric vehicles. The West Midlands continues to show its commitment to the low carbon economy.
Mechanical Masterminds

Chain reaction
Cradley Heath had become Britain’s chain-making hub before the turn of the 20th century. In response to poor working conditions, the National Federation of Women Workers took strike action that led to the introduction of the minimum wage in 1910. After ten weeks of industrial action, 60% of employers had agreed to pay the minimum wage.

Pen pals
In 1777, Birmingham engineer James Watt patented a ‘letter copying machine’ to deal with the mass of paperwork at his business. It’s credited as the first ever photocopier. Just down the road in the Jewellery Quarter, John Mitchell created a machine to mass produce steel nib pens.

By the 1820s, 75% of everything written in the world was with a Birmingham pen. Today, Katye’s Magic Candy Factory owns the first 3D printer that can personalise gummy sweets.

Glass act
Dudley-born Lawrence Southwick was one of the first glassmakers in America, pioneering his craft in Salem, the country’s first glass manufacturing district. In 1832, Smethwick’s Chance Brothers and Co. were the first company to adopt the cylinder method of producing sheet glass. They became the largest British manufacturer of window glass, plate glass and optical glasses.

Saddlers’ delight
Walsall is Britain’s capital of leather goods, rising into an international saddle-making centre at the start of the 20th century. J&E Sedgwick – now owned by Abbey England – remains the sole premium name in English Bridle Leather and the only hand-curriers in the UK.

Green heart
No city is better placed than Birmingham to lead the revolution in green energy. The University of Birmingham is world-renowned as a specialist in energy storage, with Birmingham City University hosting a dedicated Centre for Low Carbon Research.

The region’s low carbon sector is the most productive in the UK, outstripping the national average for GVA per employee.

Stamping down
Walsall Security Printers developed and printed the world’s first self-adhesive stamps in the 1960s. More than 70% of its stamp output is produced for overseas markets, including Europe and Japan, making ISP a major export success in the West Midlands.

No easy pick
Willenhall, in the borough of Walsall, has been the centre of the country’s lock industry for 400 years, with Wolverhampton firm Chubb awarded a special license by King George IV in the early 1800s.

The company became the sole supplier locks to the General Post Office and
Her Majesty's Prison. At its peak, 90% of the locks produced in England were made in Willenhall and Wolverhampton.
A new lease of life

X—ray vision

By pioneering the use of X-ray imaging, Birmingham’s John Hall-Edwards kickstarted a whole new field of medical science. He was also the first medical professional to use radiation during a surgical operation and took the first ever X-ray image of a human spine.

Today, Queen Elizabeth Birmingham was the first hospital outside London to use the radiotherapy machine CyberKnife, which uses robots to target radiation on hard-to-reach tumours. It delivers a beam with 0.1mm precision.

World authority on epilepsy

Professor Graham Harding of Aston University was the first person to find a link between flashes of light on television programmes or video games and epilepsy during the 1990s. Dr Harding published more than 150 research papers on photosensitive epilepsy and, in 1993, helped the British regulatory agency for television to draft guidelines on how to prevent triggering seizures in epilepsy sufferers.

Pioneering pacemaker research

The pacemaker has transformed the lives of patients with heart rate conditions around the world. The technology as we know it today is the result of landmark research by heart surgeon Leon Abrams and electronic engineer Ray Lightwood, both alumni of the University of Birmingham.

Today, the university is leading the way in life sciences with its research into liver transplantation and revolutionary tools in the fight against infection.

Ibuprofen patch

University of Warwick and Coventry-based company Medherant has produced and patented the world’s first ibuprofen patch, delivering the drug directly through skin to exactly where it is needed at a consistent dose rate. This paves the way for the development of a range of long-acting, over-the-counter pain relief products, without the need to take potentially damaging doses of the drug orally.

Revolutionary brain cancer treatment

The world’s leading brain cancer drug temozolomide was created by Professor Malcolm Stevens and his team at Aston University in 1987. In combination with radiotherapy, temozolomide has become the international standard-of-care for thousands of people with this type of cancer.

Sister Dora

Dorothy Wyndlow Pattison – better known as Sister Dora – was famed for her nursing and medical skills at her Walsall cottage hospital in the 1860s. Her unrelenting devotion to the welfare of her patients, mirrored by staff across NHS wards today, ensured the death rate among victims in the industrial Black Country remained lower than at London’s teaching hospitals.

Ground-breaking treatment for heart conditions
Dr Helen Maddock of Coventry University has developed a new way to test the effect of drugs on the heart without using human or animal trials. The expert in cardiovascular physiology and pharmacology formed the spin-out company InoCardia Ltd to implement the ground-breaking method.

Dr Maddock’s technique, which uses real human heart tissue for all tests, has the potential to shave years off the development of successful drugs for a range of treatments.
West Midlands advances to the next level

Green light

Wolverhampton was the first place in the UK to pioneer automated traffic lights in 1927. In easing congestion at the junction of Lichfield Street and Princess Street in Princes Square, Wulfrunians brought us one of the most recognised – and widely used – global traffic systems.

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The next level of gaming

Warwickshire’s globally significant video game development cluster - known as Silicon Spa - has over 10% of the total UK games development workforce. It’s home to over 130 of the country’s best gaming companies, including Playground Games, creators of the acclaimed Forza series.

As well as the hours of fun created in households across the globe, Silicon Spa creates 3,000 to 3,500 full-time employees and generates an estimated £224million in GVA each year.

Jewel in the crown

Birmingham's Jewellery Quarter produces 40% of the country's jewellery, alongside boxing belts, the FIFA World Player of the Year awards and 12 million items at Europe's largest Assay Office.

Located in the heart of the famous quarter, Birmingham City University's School of Jewellery is the largest in Europe, with graduates going on to work for prestigious brands including Tiffany's, Tag Heuer and Cartier.

Everything but the kitchen sink

Birmingham lays claim to a variety of kitchen gadgets, all of which are still used today.

At the turn of the 19th century, John Heard invented the stove while Arthur Price was the first to make spoons and forks from chromium plate – the forerunner to stainless steel. In 1922, Arthur Leslie Large invented the electric kettle. In 1940, John Randall and Harry Boot – both studying at the University of Birmingham – invented the microwave generator.

In 2012, Birmingham entrepreneur and Aston University graduate Nick Holzherr founded Whisk, a digital food application.

Computers

Birmingham-born mathematician and computer scientist Conway Berners-Lee was part of the team which, in 1951, unveiled the Ferranti Mark 1, the world’s first ever commercially-available electronic computer.
The world's oldest original digital computer is the WITCH (Wolverhampton Instrument for Teaching Computing from Harwell), which was used at the University of Wolverhampton in the 1950s.

Today, the West Midlands continues its innovation at the forefront of technology through the region's new 5G testbed plans.

**Going in for the kiln**

Carol McNicoll is a studio potter from Solihull and is credited with helping to transform the British ceramics scene in the late 1970s. McNicoll creates eccentric ceramics, which also serve a domestic function, be it a teapot, plate or a vessel and often fetch four-figure prices.

**Who?**

Coventry-born Delia Derbyshire created the original theme tune to Doctor Who in 1963. A pioneer of electronic music, Delia's recording was created before the availability of commercial synthesizers. Each note was individually created by cutting, splicing, speeding up and slowing down segments of analogue tape.

The tape containing recordings of a single plucked string, white noise, and the simple harmonic waveforms of test-tone oscillators, which were usually used for calibrating equipment and rooms.

**Home comforts**

From a large manufacturing site in West Bromwich, Salters Houseware Ltd produced the UK's first bathroom scale. The company went on to make the typewriter - another 'first' for the UK. The smoke alarm was patented by Birmingham's George Andrew Darby in 1902, while Birmingham-born Walter Griffiths built the first portable vacuum cleaner.

Walsall-based household repairs group HomeServe launched the LeakBot in 2016, detecting leaks by monitoring the temperature of the mains supply - helping to solve a £660 million problem for UK home insurers and £17 billion worldwide.

**Cyber security**

In an increasingly uncertain world, West Midlands universities are innovating to address issues of systems security, including in transport, healthcare and connected infrastructure.

The University of Wolverhampton's Cyber Research Institute is vital to the sector through its collaboration and innovative research, while experts from Coventry University’s Centre for Mobility and Transport are developing unique early warning systems for cyber security threats.

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**Box-office Birmingham**

Born in Birmingham in 1813, Alexander Parkes invented celluloid, used across the globe in cinematic film. Its development is heralded as the birth of the Hollywood film industry.
Birmingham businessman Oscar Deutsch, who - along with Birmingham-born film pioneers Michael Balcon and Victor Saville - was instrumental in starting the UK's film industry, founded the Odeon chain of cinemas in 1930.

Today, the city centre is a popular filming location, with Steven Spielberg's Ready Player One visiting several Birmingham sites including the Jewellery Quarter. Peaky Blinders creator Steven Knight has announced plans to boost Birmingham's film industry by building a new studio complex in 2020.

Running the show

The National Exhibition Centre in Solihull is one of Europe’s leading exhibition and event centres. From BBC's Good Food Show to Spring Fair and Resorts World, the NEC welcomes more than 2.4 million visitors and more than 39,000 exhibiting companies each year.

The West Midlands is also home to key entertainment venues such as Birmingham’s Symphony Hall, the Birmingham Hippodrome Theatre, Warwick Arts Centre, the Wolverhampton Grand Theatre and Dudley Town Hall.
A flavour of the region

Chocoholics
In 1824, John Cadbury began selling tea, coffee and drinking chocolate in Bull Street, Birmingham. Cadbury's innovative production of Cocoa Essence in the 1860s helped transform the small business into one of the world's largest confectionary companies.

Today, Cadbury is one of the world's best-selling brands, found in more than 40 countries and manufactured in more than 15 countries around the world. It employs around 70,000 people.

Custard start
Bird’s Custard was first formulated and cooked in 1837 at a chemist shop in Birmingham. Alfred Bird’s unique powdered custard recipe was so well received by dinner guests, he went on to form Alfred Bird and Sons Ltd to increase wider production. Today, the Custard Factory is at the heart of Birmingham’s buzzing creative and digital district - set in 15 acres of beautifully restored Victorian Factories.

Other kitchen staples invented in Birmingham include Typhoo Tea, HP Sauce, Bournville drinking chocolate and baking powder – again by Alfred Bird.

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Top of the food chain
The West Midlands is at the epicentre of the nation's culinary map - led by Solihull-born chef and television personality Glynn Purnell. The region is home to six Michelin-starred restaurants, alongside an award-winning street food scene including Digbeth Dining Club and the Balti Triangle.

The five second rule – the "unofficial law" that you can still eat food when it's been dropped on the floor - has been proven correct by Aston University micro biologists.
Beats, books and blinders

Literary heroes

Born in Stratford-upon-Avon, William Shakespeare continues to be one of the most important literary figures in the world. The renowned poet, playwright and actor wrote 38 plays and 154 sonnets, creating 1,700 words in the process. The Birmingham Shakespeare Memorial Library is the first, oldest and largest collection in any public library in the world.

Warwickshire-born George Eliot was the pen name of Mary Ann Evans, whose Middlemarch novel has been described as the greatest in the English language, while JRR Tolkien’s time in Birmingham influenced one of the best-selling novels ever written, The Lord of the Rings.

Today, the West Midlands continues to boast a thriving creative and media sector, with more than 10,000 companies based at venues including Birmingham's Custard Factory and Leamington’s Creative Quarter.

Broadcasting blockbusters

One of the hit television series of the last decade, Peaky Blinders is the brainchild of Birmingham-born screenwriter and film director Steven Knight. The gangster family drama begins in 1919 in post-war Birmingham and has spawned tours, clothing ranges, festivals and cocktails, as well as a host of television awards and critical acclaim. Many scenes are filmed at the Black Country Living Museum.

BBC Radio 4 soap opera The Archers is the world’s longest running drama. The “everyday story of country folk” has been made in Birmingham since it was first broadcast in January 1951 and attracts more than five million listeners.

Crime fiction

While the patent for the popular board game ‘Cluedo’ was taken out by Birmingham's Anthony Ernest Pratt, the West Midlands now boasts several prominent crime fiction authors. Coventry's Jim Grant - known by his pen name Lee Child - is famous for his Jack Reacher series, with debut book Killing Floor winning the Anthony Award for best first novel.

Solihull’s Mark Billingham writes the best-selling Tom Thorne novels, while Wolverhampton's Lindsay Ashford and Angela Marsons write the Megan Rhys and D.I. Kim Stone series.

The West Midlands rocks!

Black Sabbath, Judas Priest, Napalm Death and Led Zeppelin are bands from Birmingham and the wider West Midlands that pioneered the Heavy Metal music genre. Influenced by the industrial, urban environment of the West Midlands region at the time, the unique sound inspired successive bands such as Iron Maiden, Metallica and Nirvana.

Ozzy Osbourne and his band mates have sold more than 70 million records worldwide and were inducted into the Rock and Roll Hall of Fame in 2006, alongside Elvis, Buddy Holly and The Beatles.

Today’s music scene is led by Walsall soul singer Jorja Smith, who won Best British Female at the 2019 Brit Awards and was nominated for a Grammy Award for Best New Artist in 2019.

Ska quality
The two-tone music genre was developed in Coventry during the late 1970s. West Midlands bands such as The Specials, The Beat and The Selecter were at the forefront of two-tone scene - a fusion of ska, reggae and rocksteady with elements of punk rock and new wave.

The genre promoted and celebrated multiracialism, bringing Ska and Reggae to new heights of popularity across the country and dominating the pop charts.

**A work of art**

The West Midlands' art scene includes the world's largest collection of Pre-Raphaelite art at Birmingham Museum and Art Gallery; one of the UK's best collections of British and American Pop Art at Wolverhampton Art Gallery; and the world-famous Garman Ryan collection at the New Art Gallery Walsall, one of the first new attractions to open in the UK in the 21st century.

More than a million people visit the West Midlands' art galleries each year.

**In the good books**

Writers and creative talents Meera Syal, Sathnam Sanghera and Caitlin Moran all rely on their childhoods growing up in Wolverhampton to produce vibrant, thought-provoking stories, novels and screenplays. Their most popular titles include, Anita and Me, The Boy with the Topknot and How to Build a Girl.

**Headline acts**

The West Midlands can claim the first ever female journalist and the first ever female commentator on Match of The Day.

Birmingham-born Marie Beauclerc pioneered the verbatim note taking skill, becoming a dedicated British journalist and later teaching at the Perry Barr Institute. In 2007, Wolverhampton-born Jacqui Oatley opened doors for women in the broadcasting world when she became the first female to commentate on BBC's Match of the Day.

**A Black Country marvel**

Walsall's John Byrne is a comic book writer who has co-created a number of Marvel characters such as Kitty Pryde, Emma Frost, Sabretooth, Shadow King, Ant-Man, Bishop, Omega Red and Rachel Summers. In 2015, the first instalment of Ant-Man was released in cinemas and hit more than half-a-billion dollars at the box office.

**Fundraisers**

Sir Lenny Henry is a stand-up comedian, actor, singer, writer, and television presenter who was born in Dudley. He is known for co-founding charity Comic Relief and presenting and starring in a variety of television programmes and stage productions. Henry was given the Freedom of the Borough in 2013 and remains a regular visitor.

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Region gets the ball rolling

**Trailblazers**

The West Midlands has a proud heritage of breaking down barriers in sport. Three West Bromwich Albion footballers, Laurie Cunningham, Brendon Batson and Cyrille Regis, are credited with inspiring a generation of black professional players in the UK.

Two of English football's leading female figures hail from Solihull - Karen Carney MBE and Baroness Karren Brady, with Halesowen's Jordanne Whiley the first-ever British woman to medal in Wheelchair tennis at an Olympic Games.

Walsall's Ellie Simmonds has won gold medals across three Paralympic Games, the first at the age of 13, while Coventry's Kare Adenegan is a multiple Paralympic medallist, winning BBC Young Sports Personality of the Year in 2018.

**In a league of their own**

The West Midlands is home to five of the oldest professional football teams in the world: Aston Villa (1874), Birmingham City (1875), Wolverhampton Wanderers (1877), West Bromwich Albion (1878) and Walsall (1888). In 1888, William McGregor of Aston Villa FC invited other clubs (including Wolves and West Brom) to play regularised games of football, the creation of the Football League.

Wolves’ match with Honved in December 1954 was instrumental in the formation of the European Cup, now known as the Champions League. In honour of his beloved Wolverhampton Wanderers, composer Sir Edward Elgar penned the world's first football chant, titled "He Banged the Leather for Goal".

**Try-athlete**

Rugby in Warwickshire is known throughout the world as the birthplace of the game. It was in the market town in 1823, while playing football at his school, that William Webb Ellis picked up the ball and ran. This moment, which took place on The Close at Rugby School, is the origin of Rugby Union, Rugby League, and American Football. Today, you can visit the momentous spot and dedicated museum.

**Serving up a new sport**

Lawn tennis was invented and first played in Birmingham over 150 years ago. Major Harry Gem created the game with JBA Perera in a back garden in Ampton Road, Edgbaston. Today, the city hosts a crucial Wimbledon warm-up tournament at the Edgbaston Priory Club.
Getting down to business

Making a statement

The first Lloyds Bank was opened in Oldbury in 1864. The bank was originally set up in 1765 by John Taylor and Sampson Lloyd as a private banking business in Dale End, Birmingham.

Today, the West Midlands is a major banking and finance centre, with 321,000 employees working at more than 43,000 BPFS companies. The region is a base for big names such as Deutsche Bank, PwC and HSBC, which started as the Birmingham and Midlands Bank in 1836.