2021 vision:
the 2016/17 review

The Future of the
Electrical Contracting Industry
introduction:

In 2011, the ECA and the NICEIC published ground-breaking industry research entitled ‘2021 Vision: The Future of the Electrical Contracting Industry’. This collaborative study, based on a major survey from across the electrical contracting industry, mixed industry input with expert commentary and conclusions. It also made dozens of bold predictions for 2021. Five years on - and midway to 2021 - it’s quite remarkable to see what has changed - and what has stayed the same.
When ‘2021 Vision’ was written in 2011, the industry was still reeling from one of the worst economic recessions ever. As such, one of the key aims of the 2021 Vision was to “help the electrical contractor to see past short term survival, and prepare for the next stage of their business development”. On the way, the report also aimed to give an insight into what would be required in electrical contracting over the next 10 years, and to help “develop the skills and services that will be required for electrical contractors”.

A key output of the original ‘2021 Vision’ report was a series of ‘Future Views’ and a comprehensive review of related issues, opportunities and threats. This interim report highlights over 30 industry predictions that were made in the original report. Many have already been achieved or are well on course, while for some others, it is too early to tell. We also consider some potentially significant developments that have come to the fore since 2011. With the huge benefit of being at the halfway stage, those that are also having a significant impact on our sector include:

- The UK’s EU ‘Brexit’ decision
- Digitisation of industry processes, including Building Information Modelling (BIM)
- ‘Very big data’ and the ‘Internet of things’

Significantly, the original ECA/NICEIC ‘2021 Vision’ report also preceded the formation of Certsure in 2013, which saw NICEIC brought into the joint ownership of ECA, together with Electrical Safety First; a landmark example of collaboration in the electrical contracting industry.

With the UK decision to leave the EU, it could be argued that the policy road to 2021 has never looked so uncertain. Furthermore, and probably more than most, our industry is highly technology-driven. Whether we are considering policy or technology, the next five years promise to be very interesting indeed. There is an increasing array of commercial opportunities for electrical and diversified specialist contractors, and we will be working hard to ensure the best possible commercial environment for the entire industry.

Emma Clancy
Chief Executive Officer
NICEIC

Steve Bratt
Group Chief Executive Officer
ECA
2021 vision: the 2016/17 review

Back in 2011, the ‘2021 Vision’ survey and report set out to achieve two strategic goals. These were to:

1) consider what will be required in the electrical contracting industry over the next 10 years (2011-2021); and

2) provide direction for the development of future strategy, to develop skills and services required for electrical contractors.
seven key topics – and predictions

The original ‘2021 Vision’ was based on a comprehensive analysis of responses to a major industry survey. This led to a series of ‘2021 Future Views’, along with summaries of anticipated ‘issues, opportunities and threats’ across seven key -and interlocking – industry topics.

The seven industry topics covered in the ‘2021 Vision’ report were:

- product developments
- building design
- sustainability
- political
- social
- skills
- customer needs
Overleaf, we review (from the highly advantageous perspective of 2016/17) the predictions that were originally put forward in the ‘Future Views’ for these seven topics, using colour coding and commentary. In our colour code:

**Green** = means a prediction for 2021 still appears to be sound;

**Amber** = means a prediction for 2021 may be sound, though perhaps only in part; and

**Red** = means a prediction has already been significantly - or roundly overturned - by events.

**Blue** = outlines additional significant factors, which have arisen since 2011, and which are likely to affect the outcome for our industry by 2021.
**skills**

1. While the need for the traditional electrical contractor will remain, it will be only one of a range of skills.
2. At a lower level, there will be a need for someone who is connecting components together.
3. Because of the level of controls in heating, cooling and hot water systems, as well as renewable energy, there will be a crossover between trades.
4. In the medium term, we can expect a shortage of electrical contractors and initiatives will need to be taken to bring in new people to the industry, increasing apprenticeships.
5. To encourage take-up, the method of funding will be changed.
6. At a higher level will be the electrical contractor who acts as an energy manager, advising on installations and fine tuning them once installed.
7. While the need for electrical wiring will be far greater, de-skilling will mean that tradespersons from other disciplines can install, reducing the opportunity for the electrical contractor.
8. Electrical contractors will also have to respond to the new market economy by being more customer-focused and promoting their services more effectively.

**2016/17 Commentary:** Concerns in 2011 about the shortage of skilled managers and operatives are even more pressing in 2016/17. The situation is likely to become more acute up to 2021 and whether we focus on younger or adult training, or upskilling or re-skilling, the sector needs to increase capacity through a new, suitably trained workforce. This workforce is needed to design and fit an array of existing and new technologies, many of which were foretold in the report.

There has been dramatic deregulation of the skills landscape since 2012, coupled with a government drive for employer leadership and control over many aspects of the skills agenda - this increased power for employers is tied with an increasing requirement for a financial contribution, for example through the new apprenticeship levy and co-payment systems.

As competition for talented young people intensifies, the industry needs to raise its game in terms of promoting an accurate understanding of the work it undertakes and the complex, engineering and professional skills, that are required.

All these changes have increased the need for a collaborative approach to provide a compelling single voice on behalf of employers to government and wider stakeholders. Since 2014, ECA has been a leading partner in TESP, The Electrotechnical Skills Partnership, which is setting the skills strategy for the industry and taking practical steps to deliver solutions for employers, through initiatives such as the Career Progression Project and development of a Careers Website.
In addition, both the NICEIC and ECA have actively encouraged more women to become electrical contractors, notably through their ‘Jobs for the Girls’ and ‘Wired For Success’ campaigns, which were launched in 2011.

Industry ambassador Samantha Jones of Melvin John Electrical Contracting (ECA member and NICEIC registrant)
social

1. Over the next 10 years the construction market will show only modest growth.
2. More than half of forthcoming activity will be focused on repair, maintenance and improvement.
3. The value of electrical contracting will increase due to demands for more energy efficient buildings, as a result of the increasing energy prices and possible energy shortages.
4. Commercial customers will be more knowledgeable and, with the rising price of raw materials driving up the cost of construction, they will be encouraging greater competition.

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<th>Measure</th>
<th>2015</th>
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<td>Total New Work</td>
<td>£65.3bn</td>
<td>£69.2bn</td>
<td>£72.9bn</td>
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<td>% Increase</td>
<td>-</td>
<td>5.9%</td>
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<td>Repair, Maintenance &amp; Improvement Work</td>
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<tr>
<td>% Increase</td>
<td>-</td>
<td>4.7%</td>
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**2016/17 commentary:** There has been modest growth in construction, and the electrical contracting sector, since the recession (experience of which forged many of the comments in the 2011 survey). However, sector growth since 2011 has varied by region, and has seldom been matched by high profitability. Higher profitability has most often been seen in diversified specialist and service activity. Commercial clients and main contractors continue to operate to tight contractor margins. There have been new entrants to the electrical and associated specialist engineering market, while some established players have left. Economic volatility has meant that the price of commodities and materials has varied, rather than simply rising, though this may be about to change.

Future UK sector growth is far from assured, and may be affected by the UK Brexit decision and other international or investment factors. Slow growth, and extra capacity from UK renewables and imported gas, has helped to keep energy prices in check up to 2016/17.

In 2016/17, refurbishment activity is more a function of the housing market than government action: high property prices, brought about by housing shortages/regional population pressure, have stimulated...
refurbishment activity. Climate change may bring more weather and flood-related damage, which in turn may influence building and infrastructure design, installation and maintenance.

Low energy prices and lack of government policy support have also lessened client demand for energy efficiency, compared to high expectations. However, the 18th edition of BS 7671, expected in 2018, will – for the first time – include significant content on the energy efficiency of electrical installations. This may begin to stimulate at least some of the much-vaunted energy efficiency activity anticipated in the 2011 report.

**Changing face of the UK housing market...**
Burgeoning demand for rented accommodation drove a 28% increase in the number of privately rented homes in the last five years, according to latest analysis from Savills. But while the Private Rental Sector has grown, owner-occupation fell to 64% in 2015, from just over 69% in 2002.

DCLG figures show that in 2002 there were 2,512,000 homes in the Private Rented Sector, which had nearly doubled by 2012 to 4,920,000. Over the same period, social housing declined by more than 350,000 homes. According to English Housing 19% (4.3 million) of all households were rented privately in England in 2014-2015.
political

1. Government policy is driving towards deregulation.
2. There will be other measures to introduce codes of practice and certification for all contractor categories. This should strengthen the position of the fully qualified/competent electrical contractor.
3. Crossover of trades will create opportunities for electrical contractors who are prepared to add new skills, but will marginalise those who are not.
4. Building Regulations will demand that buildings are increasingly energy efficient, creating opportunities to install renewable energy systems.
5. EU ‘Brexit’ decision.
6. Broad international climate change acceptance.

Source: Building services engineering ‘Brexit’ survey 2016.
2016/17 commentary: A defining feature of the original ‘2021 Vision’ report was anticipation of strong government policy and legislative support for energy efficiency and renewables. The domestic ‘Green Deal’ in particular was greatly anticipated in 2011, but this government initiative simply failed to deliver. Meanwhile, government also ceased its support for zero carbon homes, issued a weak ‘Part L’ of the Building Regulations (energy performance of buildings), and reduced support for domestic solar PV (after PV installation had soared in 2015). Yet the overall uptake of solar and macro-wind power has, if anything, been more than the report hoped for, and the Paris Climate Change declaration signalled a major kick-start for global renewables. However, much more needs to be done to improve the national grid, and to provide effective support for local power generation.

While there does not appear to be government appetite for increasing certification for contractors, this may be influenced by forthcoming industry reports (e.g. the long-awaited Bonfield Review of domestic energy saving installation) and legislation (e.g. the Housing and Planning Act 2016). In addition, the ‘Registered Competent Person Electrical’ single mark and register went live in July 2014, following agreement between the Government-approved Electrical Competent Person Scheme Operators in England and Wales. However, the general stance of government for the next few years is likely to remain deregulatory.

With the UK decision to leave the EU (it is almost certain that the UK will have fully left the EU before 2021), the policy road to 2021 looks less predictable than ever. Depending on the prevailing government, energy, employment and health and safety commitments may be reviewed, subject to the outcome of EU negotiations.
customer needs

1. By 2021 the preference will be to renovate and change the design to meet new needs. This will create opportunities to rewire complete buildings.

2. Customers will also be looking for trusted energy advisors to help plan their requirements, work with the construction team to install systems and ensure efficient operation after commissioning.

3. The electrical contractor who can build expertise and then demonstrate competence has the opportunity to perform this role.

4. Digitisation and The ‘Internet of Things’.
2016/17 commentary: Neither energy prices nor government action have prompted a step change in clients’ energy efficiency behaviours, although there are some, mainly commercial and public sector opportunities (e.g. linked to larger company requirements under ESOS, and renewables). Commercial clients are looking for significant, but short payback, energy measures. The domestic energy efficiency market still relies mainly on distress purchases (such as new electrics or boilers), and while there is less scope for small-scale solar PV in the short term, opportunities may recover due to still falling PV costs and, just possibly, cost effective electrical energy storage. Opportunities in electrical contracting may well come more from diversification into various specialist areas, not just those related to energy savings.

Many consumers are, however, interested in product functionality and convenience, and there is a growing market for wireless-enabled systems of all types. The rapid rise of the internet, wireless systems, ‘big data’ and the ‘Internet of things’ (intelligent communication/actuation) are set to enable smarter infrastructure and client services.

Customers are increasingly turning to various types of social media, as well as the web, to find out about contractors, arrange for work, and broadcast their recommendations or complaints. Both domestic and commercial customers are increasingly interested in leasing rather than owning assets, which can mean significant service opportunities for contractors, but which may increasingly bring in other players, such as manufacturers or ITC companies.

Cable, and wireless...
Approved Document ‘R’- Physical infrastructure for high speed electronic communications networks was issued in April 2016. This document introduces a requirement for in-building physical infrastructure to allow copper or fibre-optic cables, or wireless devices, capable of delivering broadband speeds greater than 30 Mbps. The requirement applies in England to all new buildings, and to existing buildings undergoing major renovation.
sustainability

1. Not only will there be more electrical heating systems, but increasingly control systems will be linked together.

2. Optional installation of SMART meters in homes and local power networks.

3. Increasingly, electrical systems will be required in other trades, such as plumbing and roofing.

4. There is an opportunity for electrical contractors to be involved in all of these installations - but if this cannot be done in a cost effective manner, there is a threat that electrical contractors will not be used.

5. In recent years sustainability has moved from an issue on the margins to become one of the central issues for construction.

6. Increasing costs of energy will ensure it remains there, providing major opportunities for the electrical contractor.
2016/17 commentary: The expectation in 2011 that high energy prices and government initiatives would drive energy efficiency has been overtaken by the need to decarbonize the UK’s energy mix (using gas, nuclear, and renewable energy) and for infrastructure to work more intelligently and efficiently, and support growth in renewable energy. The 2015 Paris Climate declaration may have tempered the government’s negative stance on renewable energy. There has been a significant rise in the deployment of electrical and biomass renewable energy: only five years after 2021 Vision was produced, renewable electricity has already ousted coal as the UK - and international - energy source of choice. Yet while there is currently no significant UK energy shortage, this situation could change, possibly well before 2021, unless sufficient low carbon capacity is available.

Electrical heating is steadily increasing because the carbon footprint of electrical energy has fallen significantly as coal-fired (high carbon) electricity generation is replaced, notably by gas-fired and renewable energy. Much more needs to be done however, to improve the national grid and support local power generation.

A national smart meter roll-out is still anticipated, though it may not be a major installation opportunity for competent electrical contractors, but rather for installers who only have job-specific training. By 2021, it will be clearer whether the roll-out is meeting its aims.

Finally, there is also nascent, but increasing, demand for supply chains to ‘close the material loop’ (properly recover materials).
building design

1. Building design and construction will change with increased use of modular systems and components.

2. While there will be far greater use of high-tech electrical systems they will also be modular and plug and play, de-skilling electrical installation on new build sites.

3. There will be opportunities for the contractor who is up to date with innovation and technology.

4. Companies which respond to this, contributing cost saving ideas, will benefit.

5. Government policy will also increase opportunities in public sector work for small and medium sized contractors.

6. New buildings will also be designed with far higher levels of energy efficiency, including energy generation and storage facilities.

7. There will be major changes to the way we light our buildings.

8. There will be new approaches to procurement and changes to the relationship between main contractor and electrical contractor.

9. A high proportion of work will be retrofitting energy efficiency measures.

10. BIM is beginning to take off in major public and commercial projects.
2016/17 commentary: While some building engineering technologies are complex, the trend is towards 'plug in and function' technology. Wireless/digital monitoring and actuation are also on the rise in the commercial sector. Design, installation, monitoring and maintenance will continue to provide commercial opportunities for those contractors that have the 'know how' and capacity to operate in these areas.

The '2021 Vision' also speculated that there would be a 'lighting revolution'. So far, the revolution has mainly been a story of the inexorable rise of LED lighting, with its increasing capability to reliably meet a range of lighting needs, while offering a step change in energy efficiency.

BIM is already beginning to be deployed in the major public sector, and in some parts of the commercial sector. BIM is expected to support improved building design, and deliver greater process efficiency, and eventually, better asset maintenance.

With capacity issues on the horizon in 2016/17, more clients, main contractors and government understand the need to work more collaboratively with their specialist supply chains.
product developments

1. The internet will run at far greater speeds and will connect to many domestic appliances as part of their energy management systems.

2. There will be a raft of new product developments in response to the need for energy efficiency in buildings, but also because changes to components used as commodities such as copper are becoming increasingly expensive.

3. Most buildings will be generating some of their own power, as well as providing charging points for equipment ranging from portable entertainments to electric cars.

4. Cabling in buildings will have simplified, reducing the amount and complexity of work for electrical contractors.

5. The approach to lighting will have also changed, with more ‘designed’ solutions often simulating daylight.

6. The above will provide upgrading opportunities in existing buildings.

7. Wireless, the ‘Cloud’ and the ‘Internet of things’.
**2016/17 commentary:** Although the anticipated major boost in energy-driven client choices has not yet occurred, there have been useful developments in products that offer energy efficiency, renewable energy and energy storage. Commodity prices are highly dependent on international demand, and may be affected by Brexit. The potential for data communications activity is significant and likely to continue growing, along with ‘plug and play’ technology and emerging moves to DC distribution.

The rapid rise of the internet, wireless systems, ‘very big data’ (terabytes and above) and the potential for the ‘Internet of things’ (intelligent communication/actuation) seem set to boost the market for smarter buildings and infrastructure, and new client services. Wireless system capability and capacity is already opening up numerous domestic, commercial and infrastructure opportunities for contractors.

Further developments are anticipated in LED and other lighting technology, both in terms of functionality and energy efficiency.

Finally, as we look towards 2021 from the closer viewpoint of 2016/17, electrical energy storage is a budding technology that may give a sustained boost to local renewable energy, in situations where it offers a competitive cost for storing electrical energy.
2011 survey respondent’s headline response to four key questions
(the top five responses, to the nearest ½%)

What do you consider to be the main barriers to change in the electrical industry?

Government, legislation and regulation, problems with Part P, paperwork ('blue tape' (commercial) and 'red tape'(government))
19.5%

Lack of regulation – untrained electricians, overseas labour, general public able to purchase electrical consumables at DIY stores
17%

Problems with training (including lack of apprenticeships, cost, quality of teaching, lack of funding)
8%

Cost of running business to the electrician (including material, wages and fuel costs)
7.5%

Lack of public awareness regarding electrical safety, costs of doing a good job, dangers of DIY electrics and unskilled operatives
7%
What do you consider to be the main opportunity for your business?

- Renewable Energy: 20%
- Solar PV: 13.5%
- Energy saving and energy efficient products and installations: 13%
- New technology (including intelligent building systems, controls and SMART): 9%
- Inspection and Testing (including certification and audit roles): 4%
a recap

2011 survey respondent’s headline response to four key questions
(the top five responses, to the nearest ½%)

What do you consider to be the main threat to your business?

Lack of regulation in the sector – ‘short course’ electricians, untrained electricians, overseas labour, general public able to purchase electrical consumables at DIY stores

Aggressive competition within the industry (large companies moving into smaller markets, price wars, all-in packages, main contractor procurement strategies)

Government, legislation and regulation

Recession and economic climate

Cashflow problems (banks not lending, customers not paying, debt)
How do you think the electrical industry will be different in 10 years’ time?

- Move towards Renewable Energy (19.5%)
- More legislation and regulation (good and bad) (16%)
- More energy saving and energy efficient products and installations (13.5%)
- Increase in new technologies (including intelligent and SMART building systems, controls) (13%)
- Sole traders and SMEs will be fewer/disappear (4.5%)

Notes: the ‘2021 Vision’ report majors on factors affecting England, Wales and Northern Ireland, although many of the issues will have UK-wide implications.

The original ‘2021 Vision’ report was produced by ‘Competitive Advantage.’ We would like to acknowledge the original report and contributions from Paul Reeve and Alan Wells to this 2016/17 review.
statistics

185,994 Employees of enterprises engaged in electrical contracting

8.1% Electrical contracting as a percentage of UK construction sector
Electrical Contracting 2014, Key Note Limited

56.3% Infrastructure work growth by 2019
Construction Products Association: Forecast (April 2016)

1.45 million Part P notifications in England and Wales (April 2015 - March 2016)
Department of Communities and Local Government: Competent person self-certification schemes statistics (1st April 2015 - 31st March 2016)

£584 Average annual electricity bill for 2015
Department for Business, Energy and Industry: Quarterly Energy Prices (September 2016)

11% up UK property price increase since 2010
The Telegraph (March 2015)

8.5% Forecast increase in house prices by 2021
The Telegraph, JLL Property Post-Brexit Forecast (November 2016)

63.1 million UK population in 2011 census
Office for National Statistics: 2011 census
65.1 million UK population in 2016 estimate

-350,000 Fall in number of social housing homes
Chartered Institute of Housing: UK Housing Review (March 2015)

4.9 million Private rental properties in UK
Office for National Statistics UK Perspectives 2016: Housing and Home Ownership

92% increase Number of private rentals since 2000
Communities and Local Government Committee, UK Parliament: The Private Rented Sector report (July 2013)

64% Households owned by owner-occupiers in 2015

24 billion IoT household appliances installed worldwide by 2020 (Internet of Things)
Business Insider UK (June 2016)

53 million SMART meters to be installed across Wales, Scotland and England by 2020
Ofgem Report: Smart meter roll-out (March 2016)

30 million Premises (businesses and homes) with SMART meters by 2020
Ofgem Report: Smart meter roll-out (March 2016)

243% Growth in energy storage (batteries) market in 2015
2016/17 Review Summary

The ‘2021 Vision’ drew on the practical commercial input of electrical contractors and other stakeholders from across our industry, and its bold scope made it one of the most popular documents ever produced by the ECA or NICEIC.

In the commercial world, ten years is a very long time, yet our review shows that many of the predictions made in the original report have fared remarkably well, en route to 2021.

From the vantage point of 2016, the ‘2021 Vision’ report flagged up numerous significant commercial and technological trends for our industry: and these are the issues being actively addressed by the ECA, NICEIC and our partners today.