

'A Digital C&C' Strategy 2019-27

Background

'Technology alone will not transform the public sector, but the public sector cannot transform to meet modern citizens' expectations without it'

(quote from Transformational Government Cabinet Office)

The UK has an ageing population. Nationally, in 2019, there were 3.27 people of working age to each person aged over 65 (8.4 in London). By 2030, this figure reduces to just 2.66 (6.9 in London).

As healthcare continues to advance, people are living longer with increasingly complex long-term conditions. We face a growing challenge:

- The need to provide good quality housing, support and care for our growing over 55s population
- A reducing workforce population in relation to a rising number of people in need of care and support
- Fragmented family support networks scattered across the world, reducing the level of 'free' care
- Reducing public funding
- Greater market expectations and demands

In response to the challenges, there have been leaps in the availability and advancement of technology with increased capabilities to communicate across the world, access information, increase processing efficiency, support people to maintain independence and the detection and alleviation of deteriorating health

We are in a technological revolution and we need to make best use of solutions that help to overcome our challenges.

Our Fit Future Strategy sets out through every strand that we will increasingly make best use of technology to deliver our stretching ambitions.

The 'Internet of Things' is current and real. Robotics, virtual reality and artificial intelligence (AI) are already a part of our new connected world. C&C will be using these new technological capabilities to meet our challenges

C&C has already invested in its capability to respond to a technological world and over the last 3 years has strengthened its infrastructure and ability to scale the use of technology

- All copper data connections to every C&C property have been replaced with new future proof fibre optic cable. Bandwidth has been increased by a factor of 10 and will enable our future capacity to flex to our future needs
- We have replaced all our fixed servers into one centrally managed network of virtual servers that can be scaled for future capacity and easily migrated to the cloud

- Already, 15-20% of our services are based in the cloud, with plans to reach 100% by 2021/22
- All software licenses are dynamic and can flex with the needs of the workforce
- All key operating systems have been upgraded including
 - Microsoft Windows 10
 - CX, Housing Management Software
 - iPOS Purchase Ordering System
 - iTrent Workforce Management System
 - Sun Accounting System
 - MS Office 365
- All of C&Cs buildings are WiFi enabled, and available to all staff and residents
- New Smart boilers installed in C&C large schemes that self-diagnose faults, identify replacement parts and notify contractors that a repair is due, before any symptoms of fault occur
- A new state of the art digital call monitoring and door entry system has been installed at Oldfield Estate ahead of a programme of wider roll-out
- Innovative new Torvertafel Technology is installed at all C&C care homes to enable interaction and communication with people who are living with dementia

‘A Digital C&C’ Vision

Everything that C&C does is in support of the delivery of its overarching Fit Future Strategy. Technology cuts across every part of this supporting every department to achieve their goals

The Digital C&C Vision sets out the ambition that we will achieve through investment in technology:

<p style="text-align: center;">Services That Inspire</p> <p>C&C residents maintain maximum independence and control over their life</p> <p>Every interaction between residents and C&C staff is meaningful</p>	<p style="text-align: center;">Homes for Health & Happiness</p> <p>C&C Residents can live in a home that supports health and wellbeing</p> <p>Every resident can feel safe and connected to their family, friends and community</p>
<p style="text-align: center;">People Doing their Best</p> <p>Every member of staff can enjoy their time at work and achieve the best outcomes for residents & C&C</p>	<p style="text-align: center;">Money to Invest</p> <p>C&C is efficient and trusted and drives efficiency so that funds that are available to spend on our resident and staff wellbeing</p>

‘A Digital C&C’ Strategy

Services That Inspire

Every C&C Resident can maintain maximum independence and control over their life

In order to achieve this we will:

- Enable residents to be ‘digital citizens’ easily connecting with us and others, both socially and for practical help and choosing how that contact takes place. Where wanted residents will be able to make on-line complaints, report repairs, provide feedback and track progress, 24/7.
- Develop a technology enabled solution to develop the C&C London Concierge service as set out in the Fit Future Strategy. This will enable C&C to connect residents digitally with all that London has to offer. This is part of the development of the Service Hub
- Enable residents to connect with digital services provided by other agencies, including virtual assessments and monitoring (e.g. GP & hospital appointments). This will enable residents to connect with health, care and support, faster, more efficiently, and without leaving their home
- Enable residents to install ‘Smart Home’ and AI¹ technologies that will automate essential daily living tasks, both in their personal spaces and communal areas. This will provide residents with control over their environment and support for daily living

In addition, and specific to Care, we will

- Implement a new care management system that will enable central monitoring of resident wellbeing and care delivery and will enable families and care professionals to monitor care delivery remotely
- Work with health and care professionals to trial new technologies and robotics that can support independence and enable residents to have personal care tasks automated where this is wanted and in the interests of promoting independence
- Trial the use of Augmented Reality (AR), Virtual Reality (VR) & Semi-AI for residents who find it difficult to leave the care home, or who wish to experience a ‘real-life’ situation in another location. Residents would be able to virtually leave their home environment and visit a remote family, share a meal, travel and take part in events (e.g. going to church).

¹ Artificial Intelligence (AI) is Machine Intelligence, where machines can recognise speech and increase their vocabulary and learn to make decisions like human beings to solve tasks and problems. The More the machine does, the more intelligent it becomes – for Example Amazon’s well known ‘Alexa’, C&Cs Smart new Boilers that self-detect and report problems for fixing; toilets that monitor all activity and raise alarms at an early stage of health deterioration, Smart fridges that automatically re-order essential supplies

Every interaction between a resident and a C&C member of staff is meaningful

In order to achieve this we will:

- Ensure that Staff on the front line of our services are able to access information and services from any screen or device as needed that will support and enable them to be the solution finder and decision maker in front line delivery of resident services

Homes for Health & Happiness

Every C&C Resident can live in a home that supports health and wellbeing

In order to achieve this we will:

- Automate our building's infrastructure with intelligent, digital, connected and self-diagnosing systems that ensure repairs are carried out before symptoms are noticed by a resident
- Ensure wherever possible that smart materials are used in new buildings and major works to existing buildings, including renewable energies, sensors and smart appliances etc. This will enable full control of our buildings, cooling them faster, heating them more efficiently with choices to control the heat, humidity, and functionality of each room.
- Ensure digital records are available for all C&C buildings that enable efficient building management and marketing of the C&C offer

Every resident can feel safe and connected to their family, friends and community

In order to achieve this we will:

- Provide a platform that will enable residents, staff and residents to communicate with each other, safely and free of charge
- Roll out new digital monitoring and door entry technology to every C&C scheme
- Increase security for residents through the use of smart technology

People Doing their Best

Every member of staff can maximise and enjoy their time at work and achieve the best outcomes for residents

In order to achieve this we will:

- Support staff to do what they do best more often and maximise contact time with residents for meaningful engagement
- Ensure access to digital training and E-learning, as well as video based and remote training sessions
- Provide a smart central office working environment where collaboration occurs across a virtual network

- Enable a mobile workforce with devices that can seamlessly flex to meet different needs, from presentations, to a fully equipped desk with multiple screens, to working seamlessly on a train, or in a residents' home, or managing a meeting.
- Develop an always available, always on service with an effective, automated out of hours support and digital services

Money to Invest

C&C is efficient and trusted and can maximise the funds that are available to spend on our resident and staff wellbeing

In order to achieve this we will:

- Develop C&C as a Networked organisation with IP telephony, instant messaging and removal of paper-based systems.
- Ensure that all C&C staff can work in the most efficient way with systems that provide effective internal control and risk management
- Automate our data, enabling better analysis and informed business decisions
- Develop total preparedness for business interruptions, being totally ready for business continuity outages and reduced risk of service interruption
- Develop a network of partners system making C&C 'easy to do business with' (including Local Authorities, health services, suppliers and third sector partners)

Delivery of 'A Digital C&C'

Security

Our dedication to data and cyber security will be maintained, continuing to employ only the latest hardware and firewalls to control and secure our access to and from the internet, and maintaining our regular externally conducted probe and intrusion testing. We have readied ourselves for this transition by the previous adoption of a fully secure hard-line MPLS network, directly secured within the BT core itself, protecting our data and communications by removing them from the general internet entirely. By now moving our remote data into a secure cloud, provided by lead vendors like Microsoft, and using cloud products like Office 365, we can ensure that whenever our data is not directly in our control, it is stored in SOTA (State of the Art) conditions, with Enterprise level security and hardening, above the level recommended by the Information Commissioner.

GDPR compliance and data integrity will be a central focus, by maintaining core data sets, in set specific systems, all newly created with DSBD (Data Security by Design) as a central feature, we can ensure that our Secure Data Register is kept UpToDate, and our ability to comply with all aspects of Data Law maintained. This will be key to our ability to use our data in proactive ways, such as deep BI and resident communications such as SMS text message etc.

Resident and Staff Safety will be increased by further integration of technology, such as floor fall sensors, personal carer carried alarm units, mobile robotic units, and

advanced in-home devices for communication and door opening/camera viewing. We will also be ensuring that all cameras, doors, and alarms are connected to the Service Hub, for better continuity of service and increased staff availability and resident safety.

Our Core Technology Operating Model will be changing, from a centralised Office based technology offering, to a mobile decentralised model, using cloud technologies and dynamic infrastructure and services, to enable our staff on the ground to perform their roles as if in the office, and to provide a full range of services to our residents, where and when it best suits them.

Funding

Extra Capital cost will be seen in years 3-4 (2020-21) as the Apello system is rolled out to each of the 4 largest sites, each site is estimated to be circa £100k, so would see a £200k rise in Capex in those years.

The Revenue expenditure is likely to remain the same overall, year on year, with a gradient increase of around 10% over the 10 years. These are directly related to service provision and licensing. It is recognised that the inflationary increases over this time will be mainly offset by the anticipated lowering of cost of many elements of IT supply.

We will seek grant funding and fundraise for the furtherance of C&Cs Digital Strategy, in particular technologies that can support cognitive and physical health improvements

In instances where the implementation of technology would have a material impact on resident service charges, we will seek to work with Local Authorities to ensure that Housing Benefit claims are maximised, and residents to ensure that the technology is acceptable and affordable

People

It is acknowledged that C&C staff and residents will be at different levels of knowledge, experience, understanding and acceptance of technology. There will be some who are already pioneers and are in daily use of mobile connectivity and smart home / AI / VR. Others may struggle to adapt to the technological revolution and may be fearful of cyber crime

At each stage of implementation, 'people impact assessments' will need to be undertaken and clear implementation strategies put in place that allow people to pace their learning whilst they adapt to and adopt new ways of working and living

Many of the technologies that are included within this strategy are developed with the end user in mind and intuitively 'second guess' the user experience (such as Apple have done with their iPhone).

By enabling both staff and residents with the means and opportunity to use technology, we will provide opportunity for residents to retain an independent life and staff to work fluidly, be enabled to make decisions and to be successful at work

Associations and partnerships

C&C will be developing associations with other organisations that can help residents to live better lives

The NHS Long Term Plan 2019 sets out a framework for a [Digital NHS](#). We need to align with our NHS partners to ensure that we can maximise the opportunities for residents to access help on-demand

We will be seeking to work in partnership with

- Health and care professionals
- Technology providers, including those who are trialling Research & Development on new to market products
- Research institutions, including London Universities, who are seeking to document the useful application of technologies
- Funding institutions that can support C&C's digital future
- Third sector organisations that have a similar purpose or serve similar groups to C&C

'A Digital C&C' Delivery Plan 2019-2027

Services that Inspire	2020	2022	2027
Every interaction between a resident and a C&C member of staff is meaningful			
<p>Enable residents to be 'digital citizens' easily connecting with us and others, both socially and for practical help and choosing how that contact takes place. Where wanted residents will be able to make on-line complaints, report repairs, provide feedback and track progress, 24/7.</p>	<p>A Resident Portal App is developed and rolled out to all Residents</p> <p>Residents prompted to provide repairs feedback via SMS or email</p> <p>All services including ASB reporting, complaints, repairs reporting, feedback and rent payments, provided digitally</p> <p>Information screens in all schemes</p> <p>Tablets installed in Scheme communal areas for resident use</p> <p>Free tablets provided to all residents who want to connect with C&C digitally</p> <p>Establish resident feedback ratings system for C&C Direct Operatives</p> <p>Ensure all homes have WIFI connectivity as standard on site, look to providing superior subscription based service - IT supportive role</p> <p>Quarterly IT tech visits to main schemes, to focus on new technologies – i.e. use of voice control and new technology, happy learning for residents - Facebook, Instagram, email, internet, etc.</p>	<p>Rating system established for C&C Direct and extended to all contractors</p> <p>Residents able to self-select repairs operative based on ratings of individual tradesperson</p> <p>Auto-selection of repairs for follow up inspection</p> <p>Interactive touch screens available in Schemes</p> <p>Test installs of Voice control and automation devices within schemes.</p> <p>We will have enabled the residents to have control of their homes, to connect with us, at anytime, access key information, and be a part of digital online communities. - IT supportive role</p>	<p>All resident communal area devices will be both touch and voice interactive</p> <p>Process for residents to select to self-repair a fault in place and a system to check the quality of a resident's self-repair developed</p>

Services that Inspire	2020	2022	2027
Develop a technology enabled solution to develop the C&C London Concierge service as set out in the Fit Future Strategy. This will enable C&C to connect residents digitally with all that London has to offer. This is part of the development of the Service Hub	Service Hub set-up and fully functional New telephony system implemented	Concierge facility set up Auto prompts and selective pre-booking for events linked to mobile devices set up Digital voice assisted technology supports interaction with the digital concierge service	A fully integrated Digital Concierge Service available to all residents
Enable residents to connect with digital services provided by other agencies, including virtual assessments and monitoring (e.g. GP & hospital appointments). This will enable residents to connect with healthcare and support faster and more efficiently, without leaving their home	Develop relationships with local GPs and hospitals that would like to set up a digital appointment and healthcare tracking scheme Ensure that our services are able to align with the NHS digital transformations strategy	Implement at least one trial facility that enables live streamed medical and doctor appointments / healthcare monitoring	All C&C homes and schemes have a digital healthcare monitoring room
Enable residents to install 'Smart Home' and AI ² technologies that will automate essential daily living tasks, both in their personal spaces and communal areas. This will provide residents with control over their environment and support for daily living	Support Apello to develop their software to enable all monitoring, communicating, door entry and smart home technology to be enabled from one App on a smart device/Wall unit Ensure WiFi accessibility throughout all C&C buildings, clearing any blackspots	Embed tested and working Voice control and automation options in all compatible homes including adaptive technology and home security.	All residents able to choose to employ smart technology, and all wall units able to provide all digital C&C services.

² Artificial Intelligence (AI) is Machine Intelligence, where machines can recognise speech and increase their vocabulary and learn to make decisions like human beings to solve tasks and problems. The More the machine does, the more intelligent it becomes – for Example Amazon's well known 'Alexa', C&Cs Smart new Boilers that self-detect and report problems for fixing; toilets that monitor all activity and raise alarms at an early stage of health deterioration, Smart fridges that automatically re-order essential supplies

Services that Inspire	2020	2022	2027
Implement a new care management system that will enable central monitoring of resident wellbeing and care delivery and will enable families and care professionals to monitor care delivery remotely	Implement a new digital and CQC compliant care management system Interactive tablets used by all frontline care staff, documented care plans, activity plans and risk assessments, with digital shift login, ability to swap shifts and arrange cover	All care tasks undertaken recorded digitally including meals, medication, and all activities, and can be shared with the residents family.	
Work with health and care professionals to trial new technologies and robotics that can support independence and enable residents to have personal care tasks automated where this is wanted and in the interests of promoting independence	Assessment of new care and health technology to trial in schemes	We will have embedded tested and working new care-based technologies and practices in all homes, including adaptive technology and health systems	Where needed or advantageous we will be integrated with local health care providers and NHS.
Trial the use of Augmented Reality (AR), Virtual Reality (VR) & Semi-AI for residents who find it difficult to leave the care home, or who wish to experience a 'real-life' situation in another location. Residents would be able to virtually leave their home environment and visit a remote family, share a meal, travel and take part in events (e.g. going to church).	Test new technology such as VR and voice assisted technology in homes and communal areas. A VR room established at CO (or a suitable Scheme site) for interactive meetings, further testing and service design.	Rollout of VR / AR facilities to all schemes and homes To have events VR streamed to homes	

Services that Inspire	2020	2022	2027
Ensure that Staff on the front line of our services are able to access information and services from any screen or device as needed that will support and enable them to be the solution finder and decision maker in front line delivery of resident services	All staff given remote working capable devices and software.	All systems available anywhere, based from the cloud, with full redundancy.	

Homes for Health & Happiness	2020	2022	2027
Every C&C Resident can live in a home that supports health and wellbeing			
Automate our building's infrastructure with intelligent, digital, connected and self-diagnosing systems that ensure repairs are carried out before symptoms are noticed by a resident	Research new technology for intelligent homes in industry - doors, air, boilers, temp, water assessment, linked fire and alarms, etc	Trial new developments with cost effective technology schemes, to test benefit	We will invest in proven smart technologies that help our buildings be more efficient
Ensure wherever possible that smart materials are used in new buildings and major works to existing buildings, including renewable energies, sensors and smart appliances etc. This will enable full control of our buildings, cooling them faster, heating them more efficiently with choices to control the heat, humidity, and functionality of each room.	All new construction activity to be BIM (Building Information Modelling) modelled and rendered within VR Begin the examination of the 'renewable technology project' Enhance site infrastructure and Central Office GB carrier circuits ready for higher usage Research Drone based surveying	Full smart home capability offered to all who choose it Partnered with Smart Home providers to provide technological services for residents Drone investigation project to assess feasibility to replace some forms of inspections	Intelligent semi-AI systems that make decisions about power and climate within each unit, that auto report upon fault, or need for inspection, centrally linked AR and holographic projectors in place

Homes for Health & Happiness	2020	2022	2027
			in key areas in all schemes to allow a virtual presence
Ensure digital records are available for all C&C buildings that enable efficient building management and marketing of the C&C offer	<p>Project to digitalise all current plans and building architectural drawings and store in Asset Management System</p> <p>VR creation of our new development planned for the old Dora site</p> <p>Full Implementation of Lifespan Asset Management System</p>	<p>VR library created of all stock</p> <p>Migration of Asset Management Data into Keystone Asset Management System</p>	
Every resident can feel safe and connected to their family, friends and community			
Provide a platform that will enable residents, staff and residents to communicate with each other, safely and free of charge	<p>Continue phase 4 WIFI expansion.</p> <p>Roll out Digital Monitoring and Door Entry to all Schemes</p> <p>Enable room to room, and site to site VoIP (Voice over Internet Protocol) communications for willing residents, provide an app interface, so residents can also use on their tablets or phones when away from the scheme.</p>	All Schemes have digital monitoring and door entry systems installed and connected to the service hub	All C&C digital services available via the Wall mounted 'Entry device' or smart phone.

People Doing their Best	2020	2022	2027
Support staff to do what they do best more often and maximise contact time with residents for meaningful engagement	New integrated HR System investigated Full employee self-service implemented with automated on-boarding and off-boarding, including training flows	Place information in the hands of staff, with tablets and intelligent readers with all data and information need to perform their role and make local decisions within policy and authority limits and improve outcomes for residents	
Ensure access to digital training and E-learning, as well as video based and remote training sessions	Automated training and employee development with career progression, succession planning, and training plans customized to the individual, the role, and the department	All E-learning and digital training to be available as part of the employee career progression, and available on the device the staff member uses on a daily basis.	
Provide a smart central office working environment where collaboration occurs across a virtual network	Finalise the long-term plan for the Central Office space, to allow for maximisation of effective communication between teams and value for money, connectivity and facilities that foster creativity and enable teams to work in the most effective way Establish future usage of central office and technology requirements Upgrade Central Office circuits for capacity for the next two years	Our central office space will be fully functioning, fit for purpose, and a great place to work. We will be using technology to connect virtually with staff in other locations	Our teams will work in a modern creative space. One that fosters curiosity and innovation, with use of technology and encouragement to develop new ideas
Enable a mobile workforce with devices that can seamlessly flex to meet different needs, from presentations, to a fully equipped desk with multiple screens, to working	Establish and roll out virtual meetings, remote files, and cloud service migrations	Enable full remote collaboration and multi-location reporting and presenting	

People Doing their Best	2020	2022	2027
seamlessly on a train, or in a residents' home, or managing a meeting.	Staff access to all software and data from out of the office		
Develop an always available, always on service with an effective, automated out of hours support and digital services	Network all entrance systems and cameras, to enable single supplier Out of hours service (or internal provision)	Provide all digital services into a 'residents portal' such as ASB, complaints, and repairs, to enable instant self-service.	Have this service able to be used from the wall unit in each home. Have the ability to service the whole C&C estate from one room, in one location, for any potential over night services.

Money to Invest	2020	2022	2027
Develop C&C as a Networked organisation with IP telephony, instant messaging and removal of paper-based systems.	Install new Cloud Telephony, messaging software, and migrate to Office 365 and SharePoint	Migration of all remaining IT Hardware into the cloud.	Cloud infrastructure migration will be finished, all equipment will have been virtualised and placed into the cloud
Ensure that all C&C staff can work in the most efficient way with systems	Bring stability and automation to financial systems, and then enact key SUN and	Systems in place to provide real-time performance metric information to the business.	Business Intelligence software will have been installed and

that provide effective internal control and risk management	IPOS improvements to enable required metrics reporting		in use throughout the Executive level of the business.
Automate our data, enabling better analysis and informed business decisions	Establish and create key digital and automated metrics reports	Compliance software installed for metrics and tracking core business activities	
Develop total preparedness for business interruptions, being totally ready for business continuity outages and reduced risk of service interruption	Install 4G back up devices at all Apello sites and care homes. Install failover lines at Central Office Install new Cloud Telephony system.	Complete Cloud migration, and have full redundancy capacity for systems and phones.	
Develop a network of partners system making C&C 'easy to do business with' (including Local Authorities, health services, suppliers and third sector partners)	Communicate with and trial several new product categories, such as Robot care aids and therapeutic aids, Floor sensors, medical toilets, smart home entry devices, tablets, and vocal and optical recognition. Communicate and volunteer to LA's and 3 rd sector suppliers, for new initiatives and digital funding.	Test and trial promising cost-effective models at our Care homes and schemes.	We will invest in cost-effective digital services, provided by technical partners or digitally enabled local partnerships.