Councils given greater financial relief against cash flow pressures

New measures to help ease immediate financial pressures faced by councils in England due to the coronavirus outbreak have been announced by the government today (16 April 2020).

Councils will be allowed to defer £2.6 billion in business rates payments to central government, and £850 million in social care grants will be paid up front this month in a move aimed at helping to ease immediate pressures on local authority cash flows.

Councils are doing crucial work to help vulnerable people and the wider communities get through this crisis. This includes delivering essential supplies to the vulnerable, paying out financial relief to local businesses and get rough sleepers into accommodation. The government wants to ensure that they have the support they need at this unprecedented time.

Local Government Secretary Rt Hon Robert Jenrick MP said:

> Whether it be caring for the elderly, providing outpatient services, councils are providing vital support to the most vulnerable people in our society throughout this pandemic.
>
> I am determined councils get the support they need which is why I am taking action to ease some of the immediate financial pressures they face in responding to coronavirus, helping to protect the NHS and save lives.

These new measures mean councils will be able to defer £2.6 billion of payments they are due to make to central government over the next 3 months as part of the business rates retention scheme.

Additionally, the government will bring forward care grant payments to councils worth £850 million for both children and adults. These will now all be paid this month, rather than monthly in April, May and June, and will help provide immediate support for core frontline social care services.

Regulator approves first Ventilator

Challenge device

Penlon's Prima ES02 model is now authorised by the Medicines and Healthcare products Regulatory Agency (MHRA) for use in hospitals. It follows extensive final testing of these devices in hospitals to ensure that they are safe and effective.

Penlon has worked with the VentilatorChallengeUK consortium, which includes a number of groups including High Value Manufacturing Catapult, Ford, a number of UK based F1 teams and Siemens.

The Penlon device is a newly-adapted ventilator design, adapted from previous models, that meets the rapidly manufactured ventilator system specification. It is a fully intubated mechanical ventilator designed to provide support to critically ill patients with a range of functions including volume and pressure controlled ventilation.

Following the device's approval, the Government has confirmed an order for 15,000 Penlon devices. Hundreds of units are expected to be built over the next week, with production being further scaled up in the coming weeks.

The first dispatch of 40 Ventilator Challenge Penlon devices will be sent to MOD Donnington today and will be delivered to the NHS front line very shortly.

The news follows the arrival of an existing ventilator model by paraPAC to the NHS front line across all four nations last weekend. 80 paraPAC devices were produced last week, with production being ramped up into the hundreds over the next few weeks. As an existing device, the paraPAC already had MHRA approval.

Chancellor of the Duchy of Lancaster Michael Gove said:

> The approval of Penlon's device underlines the significant progress being made in the Ventilator Challenge.
>
> I pay tribute to the incredible ingenuity and commitment of our manufacturing industry, coming together as part of the national effort to protect the NHS and save lives.

Last month the Prime Minister called on some of the biggest names in British manufacturing to help step up ventilator supplies, in order to save lives during this coronavirus pandemic. Following this, the government has partnered a number of the UK's leading technology and engineering firms with smaller manufacturers to rapidly build existing, modified or newly designed ventilators at speed.

Currently, over 10,000 mechanical ventilators are available to NHS patients, which is set to increase further through these new devices as well as through

additional orders from overseas.

Special feature: Data science at GAD

Our increasingly digitalised modern world produces more data in a wider variety of formats than ever before. Data science techniques allow us to process, analyse, gain insights and communicate results from this increasing volume of data. As part of our growth as a learning organisation, this is also a key area in which we are investing to further increase our expertise.

This article provides an overview of data science and discusses how GAD's actuaries are increasingly utilising its techniques to enhance the quality and efficiency of our work. In particular, we explore the use of machine learning.

Overview of data science

Data science includes algorithms, mathematics, statistics, analytics, data mining and programming. The graphic below highlights some key data science themes and the value they can add to real world problems.

Making sense of 'big data'

The work of GAD's public sector clientele often exposes us to datasets much larger than those used by equivalent private sector actuarial firms. For example, GAD's work on actuarial valuations of the (unfunded) public service pension schemes requires the analysis of data for around 15 million individuals.

The volume and complexity of the data held for this exercise, and other GAD projects, continues to increase. Through increased adoption of data science techniques GAD is able to:

- process, query, analyse and report on larger datasets more efficiently
- improve and streamline current processes through automation
- adopt more sophisticated forms of analysis and modelling, through techniques such as machine learning (discussed in more detail below)
- innovate our client advice by using interactive models, dashboards and visualisations to report on data and other analysis results

The benefits of this are twofold: to increase the efficiency of the work we undertake and to allow our actuaries to provide more meaningful advice to facilitate better-informed client decisions. Increased availability of data can also introduce new problems to which GAD's analysis can add value. Examples include analysis of health data, disaster risk financing and analysing risks associated with climate change.

Machine learning

At GAD, machine learning techniques can play a key role in enhancing our understanding of, and advise in relation to, areas of future uncertainty. Our case study provides one such example, by discussing how machine learning techniques supported GAD's work on the sale of student loans by UK Government Investments.

Machine learning uses statistics, operational research, mathematics and computer science to build logic for algorithms (a sequence of well-defined rules/instructions) to produce predictions. These algorithms can aid understanding of, and provide insights in relation to, a wide variety of problems. Ways machine learning techniques can add value include the following:

- Enhancing existing processes: GAD's work regularly uses statistical 'supervised learning' techniques such as linear regression and decision tree analysis. Examples include predicting future earnings for UK graduates and identifying factors driving mortality rates from pension scheme member data.

- Identifying new patterns in existing data: by identifying new patterns algorithms can learn to group data items with similar characteristics through 'unsupervised learning'. GAD recently used this technique to segment data on the financial performance of 2,000 UK defined-benefit pension schemes into groups with similar characteristics. This enabled us to effectively tailor our data analysis and reporting to our clients' needs.

- Independent decision making: some new or very complex problems require the use of 'reinforcement learning'. This is where algorithms learn to react with, and to make decisions in, an environment through a trial and error approach. While this is still a developing area, its complex applications are helping to drive a host of new technological innovations, such as the development of automated cars.

Future focus

Going forwards the volume of data available is only set to increase, with so called 'big data' here to stay. Data science is a rapidly evolving discipline and GAD remains committed to staying at the forefront of these new developments and building our expertise accordingly.

Our actuaries will continue to apply the latest data science techniques in new and innovative ways, producing meaningful advice to assist our clients with the challenges of the future.

Universal Credit claimants to verify identity through Government Gateway

- Only go outside for food, health reasons or work (but only if you cannot work from home)
- If you go out, stay 2 metres (6ft) away from other people at all times
- Wash your hands as soon as you get home

Do not meet others, even friends or family.

You can spread the virus even if you don’t have symptoms.

GAD and COVID-19

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