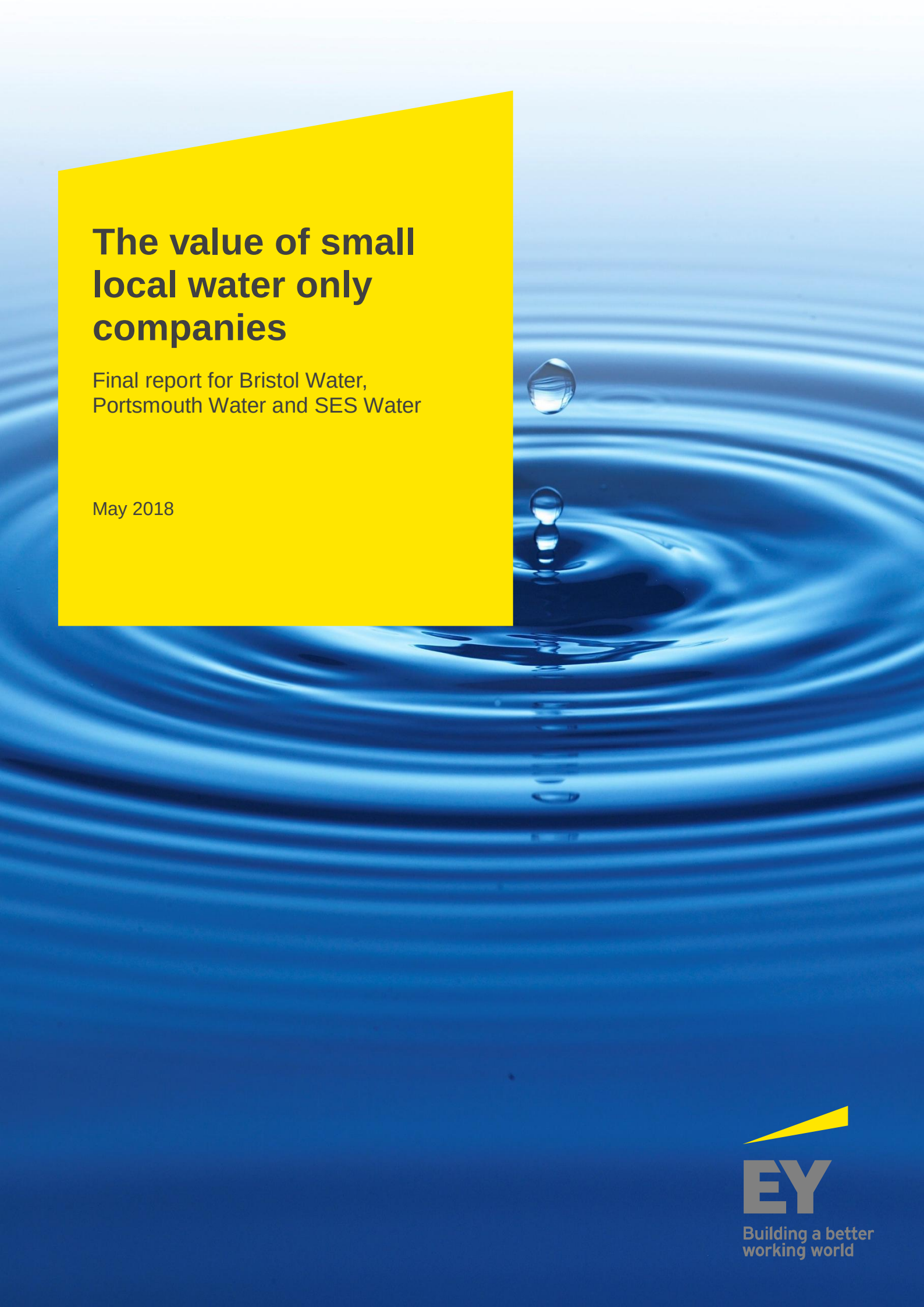
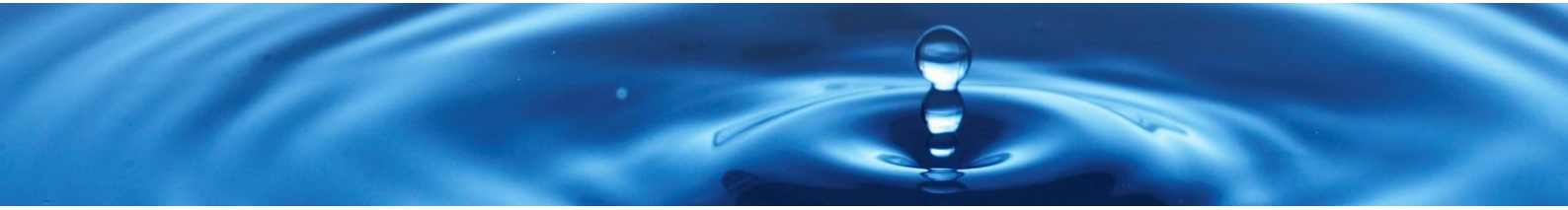


The value of small local water only companies

Final report for Bristol Water, Portsmouth Water and SES Water

May 2018

Building a better working world



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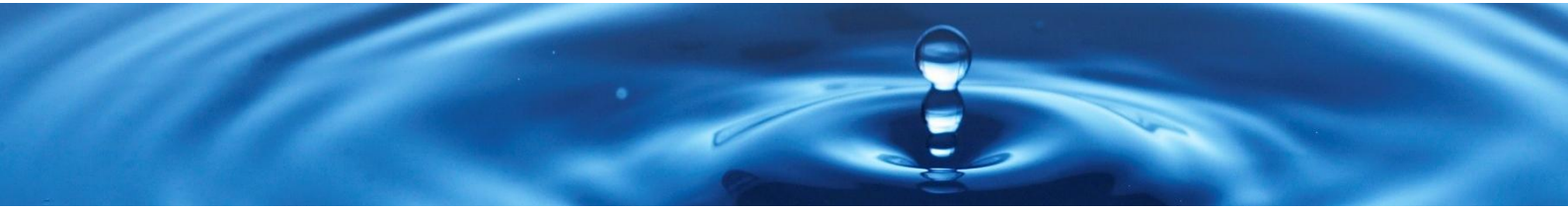

Contents

Executive Summary

In its PR19 methodology decision document Ofwat has indicated that in order for small local water only companies (WoCs)[1] to justify a company-specific adjustment to the cost of capital at PR19, small local WoCs will need to demonstrate that:[2]

- small local WoCs face a higher cost of capital;
- there are benefits from being small and local that adequately compensate customers for the higher cost of capital requested;
- there is compelling evidence of customer support for the requested adjustment; and
- there is compelling evidence that the level of adjustment requested is appropriate.

In this context, a key question facing the small local WoCs is how to demonstrate that they deliver additional benefits for their customers and for customers of other water companies (e.g. as a result of being used in benchmarking by Ofwat to challenge other companies to improve).

A framework or methodology is required for identifying the relevant benefits that small local WoCs can deliver and how to quantify those benefits. Bristol Water, Portsmouth Water and SES Water have commissioned EY to develop this framework.

The key focus of this work is on identifying and describing the way in which local WoCs create additional benefits for their customers, and other water companies' customers, *as a result of being local WoCs.* In other words, this report focuses on explaining *how and why* local WoCs deliver additional benefits for water customers. In our view, this issue raises the following key questions:

1. What are the relevant benefits that a local WoC can produce for its customers?
2. Why might being small and local help small local WoCs deliver benefits for their customers and the customers of other water companies?
3. How can the benefits be measured and quantified?

We summarise our assessment in each of these areas below.

What kinds of benefits would be relevant to demonstrating that small local WoCs deliver additional benefits for water customers?

In its PR19 methodology decision document, Ofwat states that when assessing the benefits that local WoCs deliver for their customers, it will have regard to similar tests to those it uses when assessing mergers.[3] In Ofwat's Statement of Methods for assessing mergers, Ofwat lists a range of types of benefits which have been expected to arise from past mergers, which might therefore provide an indication of some of the kinds of customer benefits that may be relevant for small local WoCs to demonstrate.[4]

These benefits (listed out in full in Section 2 of this report) can be broadly categorised into cost savings and quality of service improvements, both of which might arise in a variety of ways. However, the list of benefits also includes intermediate steps towards those ultimate objectives, such as different management approaches, increased responsiveness to customer needs, greater use of local contractors, improved employee morale and opportunities and factors which might be characterised as linking to innovation such as pooling of best practice and exchanging of information on technical matters.

[1] For the purposes of this paper, "small local WoCs" is defined to be the four smallest WoCs in England and Wales i.e. Bristol Water, Portsmouth Water, SES Water and South Staffordshire Water.
[2] See https://www.ofwat.gov.uk/wp-content/uploads/2017/12/Final-methodology-1.pdf, p180.
[3] See Ofwat (2015) "Ofwat's approach to mergers and statement of methods" https://064f1d25f5a6fb0868ac-0df48efcb31bcf2ed0366d316cab9ab8.ssl.cf3.rackcdn.com/wp-content/uploads/2015/11/pap_pos20151021mergers.pdf
[4] See https://064f1d25f5a6fb0868ac-0df48efcb31bcf2ed0366d316cab9ab8.ssl.cf3.rackcdn.com/wp-content/uploads/2015/11/pap_pos20151021mergers.pdf, Table A2.5

Noting the above, small local WoCs might be able to deliver benefits for water customers in a wide variety of ways.

How and why might small local WoCs deliver additional benefits for water customers?

As illustrated in Table 1 below, small local WoCs have been among the leading companies in the English and Welsh water sector over the years since privatisation across a range of measures of performance.

Table 1: Rankings of the four small local WoCs' performance across a range of measures

	Bristol Water	Portsmouth Water	SES Water	South Staffs Water
Average water bill (2018/19)[5]	13**	1	16**	2 and 4*
PR14 FD wholesale cost efficiency[6]	18	5	11	12
PR14 FD household retail cost to serve per metered water customer[7]	6	1	5	9
PR09 water opex efficiency[8]	11	2	6	3 and 19*
SIM score (2016/17)[9]	6	1	15	10
SIM score (2011/12)[10]	1	17[11]	10	4 and 5*
Leakage (litres per property per day) 2016/17[12]	5	8	3	13
Compliance Risk Index score (2016)[13]	5	3	1	6 and 11*
Average minutes lost 2016/17[14]	15	3	4	5
Per capita consumption 2016/17[15]	12	14	20**	1 and 8*
Burst pipes (per 1000 km of network) 2016/17[16]	10	2	1	6

Notes: Cells have been highlighted where the small local WoC is ranked within the top 5 in the industry. (*) South Staffordshire and Cambridge Water reported separately. (**) Additional regions such as Hartlepool or Essex and Suffolk reported separately, increasing the number of companies in the industry for this statistic. Rankings shown are for water undertakers i.e. exclude new appointments and variations.

We can also observe examples of smaller organisations being leading performers in other sectors too. For example, smaller players have achieved some of the highest customer satisfaction scores of any of the energy suppliers.[17]

[5] See https://www.discoverwater.co.uk/annual-bill
[6] See http://webarchive.nationalarchives.gov.uk/20150603204103/http://www.ofwat.gov.uk/pricereview/pr14/pap_tec140830pr14costassess_summary.pdf
[7] See https://www.ofwat.gov.uk/wp-content/uploads/2015/10/det_pr20141212hhretail.pdf
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[9] See https://www.ofwat.gov.uk/regulated-companies/company-obligations/customer-service/
[10] See https://www.ofwat.gov.uk/regulated-companies/company-obligations/performance/companies-performance-2011-12/customer-experience/
[11] Portsmouth Water has indicated to us that its SIM performance in 2011/12 reflected systems issues in defining unwanted calls, not the actual level of service to the customer.
[12] See https://discoverwater.co.uk/leaking-pipes
[13] See http://www.dwi.gov.uk/about/annual-report/2016/Drinking_water_2016_Public_water_supplies_Wales.pdf, p16.
[14] See https://www.ccwater.org.uk/wp-content/uploads/2017/12/Water-water-everywhere-Delivering-a-resilient-water-system-2016-17.pdf
[15] See https://discoverwater.co.uk/amount-we-use
[16] See https://discoverwater.co.uk/loss-of-supply
[17] See https://www.theguardian.com/money/2018/feb/19/small-energy-suppliers-top-uswitch-customer-satisfaction-survey and https://www.citizensadvice.org.uk/about-us/how-citizens-advice-works/citizens-advice-consumer-work/supplier-performance/energy-supplier-performance/compare-domestic-energy-suppliers-customer-service/

This report considers how and why these small local companies have been leading performers. Our discussions with small local WoCs have identified a number of hypotheses about the advantages that being small and local might give rise to. These include:

- Small local firms have more agile decision making structures;
- Small local firms are better at innovation;
- Small local firms are more consumer orientated; and
- Customers prefer to buy products and services from local companies (all else equal).

To assist the small local WoCs test whether these hypotheses might be worthy of further consideration we have examined the academic literature in these areas and case studies from some of the small local WoCs.

Table 2: Summary of academic literature relating to possible benefits of being small and local

Characteristic	Summary of academic literature
Small local firms have more agile decision making structures	The academic literature provides a number of examples of research which suggests that smaller firms – similar in size to WoCs – are able to benefit from more flexible and agile managerial structures due to a lower degree of hierarchy i.e. fewer tiers of management. The literature has theorised that this may be the case for various reasons including: · the smaller the organisation is, the more likely that managers will be closer to daily operations (Williamson (1976)); · large firms may lose overall managerial co-ordination stemming from more hierarchical levels (Arrow (1974)); and · smaller firms tends to have greater internal fluidity that allows easier access to decision makers and lines of communication which are task rather than structure determined (Miller and Rice (1967)).
Small local firms are better at innovation	The academic literature also suggests that smaller firms may be more innovative than larger firms. The literature has discussed that this may be the case for a number of reasons, including: · small firms "exhibit high rates of product innovation, informal organisation structure and entrepreneurial spirit" (Adams (1982)); · small firms take advantage of knowledge spillovers from corporate R&D laboratories (i.e. from so-called "open innovation practices") in an effort to make better use of existing resources (Acs and Audretsch (1994)); · small organisations appear to be able to utilize their university-based associations to leverage their internal R&D to a greater degree than large firms (Link and Rees (1990)); · "bureaucratization" in the innovation decision making process in larger firms inhibits not only inventiveness but also slows the pace at which new inventions move through the corporate system toward market (Link and Rees (1990); and · small firms are structurally better equipped for high innovativeness due to less restrictive organisational controls (Timmons and Spenneli (2009)). A number of empirical studies have also identified that smaller firms may be more innovative than larger ones. For example: · a number of studies suggest that small and medium-sized firms, rather than large firms, conduct R&D more cost-efficiently (e.g. Levin, Klevorick, Nelson, Winter, Gilbert and Griliches (1987), Soto (2009) and McKenzie (2007)); and · larger firms produce fewer innovations per dollar spent on R&D (Cohen and Klepper (1992)). They evidence that "smaller firms' produce more innovations than one would expect on the basis of their input".
Small local firms are more consumer orientated	A number of studies have identified that smaller companies are more consumer orientated. For example: · because smaller firms are often typified by a limited range of products and customers, this therefore makes it easier to gather and process customer or market information for decision making (Appiah-Adu and Singh (1998)); · because customer orientation is likely to be a vital determinant of success for small firms it is likely to be an area of greater focus (Pelham and Wilson (1996)); and · due to the lack of organisational restraints within small firms, they are more likely to excel in consumer orientation due to the closeness between upper management and the customer (Brockman et al (2012)).

Characteristic	Summary of academic literature
Customers prefer products and services from a local company	There is some evidence in the academic literature to suggest that customers prefer to buy products and services from the local region in some circumstances. For example, Hauser (1993) and Balling (1995) found that products identical in every respect, except for their province and region of origin, were evaluated differently by consumers. Ittersum et al (2003) and Obermiller and Spangenberg (1989) both identify that customers are more likely to prefer products from certain local regions due to the emotional response of consumers to regional stereotypes.

We note that the academic literature summarised above is not focused on the water sector, nor generally on the case of natural monopolies, but rather on companies operating in a wide range of other markets and sectors. The literature cannot therefore be regarded as *definitive proof* that the small local WoCs deliver additional benefits for water customers than larger water companies, but the literature shows ways in which the small local WoCs *could* deliver additional benefits. The case studies presented in this report (see Section 3) provide some indication that small local WoCs *do* actually deliver additional benefits in these ways, but it is for each of the small local WoCs to prove that they deliver these benefits themselves taking into account evidence and examples relevant to their own circumstances.

The small local WoCs will also need to demonstrate that the benefits arising from being small and local outweigh any costs, such as loss of economies of scale and/or scope, which may also arise from being small and local (though, as we discuss in Box 1 later, the academic literature is mixed on the size of available economies of scale and scope).

How might the additional benefits delivered by small local WoCs be quantified and valued?

The ways in which small local WoCs might deliver additional benefits for customers described above – more agile decision making, better innovation, more customer orientation – could translate into lower costs, higher standards of service or a combination of the two. These additional benefits will need to be converted into monetary terms on a net present value basis.

Defining the counterfactual to small local WoCs

To value the net-benefits delivered by small local WoCs, the costs and standards of service of the small local WoCs would need to be compared to an appropriate counterfactual scenario. In this regard, we note that there may be a number of available approaches to defining the counterfactual and that the counterfactual scenario will need to not only to be defined for the current situation, but also forecast over an appropriate period. Assessing what the situation might be if there was no small local WoC operating in a particular region is a difficult and somewhat subjective exercise, so in our view unless there are good reasons to assume otherwise, it may be appropriate to simply assume that the differences in costs and service standards which currently prevail would persist into the future.

Quantifying the current and future additional benefits delivered by small local WoCs

Different kinds of benefits delivered by small local WoCs might be quantified in monetary terms in different ways. For example, while efficiency savings should be relatively easy to express in monetary terms, the benefits of better standards of service would need to be converted into monetary terms. This might be done using willingness to pay data or the financial rewards/penalties applied under Outcome Delivery Incentives (ODIs) since these provide a measure of the value, in monetary terms, of better standards of service.

These benefits would need to be calculated within a small local WoC's own region, but any spill-over benefits created for customers of other water companies (e.g. via Ofwat's benchmarking of costs and performance across the industry) would also need to be taken into account. With respect to the latter, small local WoCs may wish to consider the methodologies the Competition Commission has previously developed for estimating the benefits which being able to include an additional comparator company in comparisons of industry performance might deliver for water customers.

Discounting forecast additional benefits into present value terms

To convert the benefits of small local WoCs into present value terms, the relevant costs and benefits will need to be forecast over an appropriate time period and discounted using an appropriate discount rate.

There are a number of different approaches which might reasonably be taken to deciding the relevant time period to measure costs and benefits over. However, in our view it could be appropriate to compare any costs arising from a higher cost of capital allowed over the 2020-25 period with the benefits delivered by small local WoCs over that period, as well as any benefits which the presence of those WoCs during the 2020-25 period might give rise to in the years after 2025 e.g. any quality of service or efficiency improvements which Ofwat is able to apply to other companies after 2025 as a result of observing the performance of small local WoCs during the 2020-25 period.

With respect to the choice of discount rate, we note that in its Statement of Methods for assessing mergers Ofwat has previously indicated that its preferred approach to discounting forecasts of future benefits is to use the HM Treasury Green Book social time preference rate of 3.5%. This approach would be consistent with the Competition Commission's approach to discounting the future detriment of a merger in the South Staffordshire Water and Cambridge Water merger case.[18] Noting the above, in our view, the small local WoCs might reasonably use the social time preference rate to calculate the present value of the expected future additional benefits that being small and local would enable them to deliver for water customers.

[18] See http://webarchive.nationalarchives.gov.uk/20140402204344/http://www.competition-commission.org.uk/assets/competitioncommission/docs/2012/south-staff-cambridge-water/final_appendices_and_glossary.pdf, Appendix H, paragraph 6.

1. Introduction

In its PR19 methodology decision document Ofwat has indicated that in order for small local water only companies (WoCs)[19] to justify a company-specific adjustment to the cost of capital at PR19, small local WoCs will need to demonstrate that:[20]

- small local WoCs face a higher cost of capital;
- there are benefits from being small and local that adequately compensate customers for the higher cost of capital requested;
- there is compelling evidence of customer support for the requested adjustment; and
- there is compelling evidence that the level of adjustment requested is appropriate.

While the merits of a customer benefits test are debatable and the CMA rejected the test during Bristol Water's appeal of PR14, if the small local WoCs wish to secure Ofwat approval for a company specific adjustment to their cost of capital at PR19 then it appears that those companies will need to satisfy Ofwat's customer benefits test. In that context, a key question facing the small local WoCs is how to demonstrate that they deliver additional benefits for their customers and for customers of other water companies.

A framework or methodology is required for identifying the relevant benefits that small local WoCs can deliver and how to quantify those benefits. Bristol Water, Portsmouth Water and SES Water have commissioned EY to develop this framework.

The key focus of this work is on identifying and describing the way in which local WoCs create additional benefits for their customers, and other water companies' customers, *as a result of being local WoCs.* In other words, this report focuses on explaining *how and why* local WoCs deliver additional benefits for water customers. If the small local WoCs can demonstrate that they do deliver these additional benefits, and that those benefits (net of any additional costs of being small and local) are large enough to justify the higher cost of capital that they face.[21] In our view, there are four key strands to this issue, including the four key questions below.

Four key elements of a framework exploring how and why local WoCs deliver additional benefits for water customers

1. What are the relevant benefits that a local WoC can produce for its customers?
2. What is unique about local WoCs i.e. different from larger WoCs and from WaSCs?
3. How do those unique characteristics lead to benefits for customers of local WoCs and of other water companies?
4. How can the benefits be measured and quantified? For example, how can benefits be expressed in monetary terms and how should benefits accruing to future customers be discounted?

To explore the issues described above, this report is structured as follows:

- Section 2 considers the kinds of benefits that would be relevant to demonstrating that small local WoCs deliver additional benefits for water customers;
- Section 3 discusses how and why small local WoCs may be able to deliver additional benefits for water customers, drawing on the academic literature and case studies; and
- Section 4 outlines how any additional benefits delivered by small local WoCs might be quantified and valued.

[19] For the purposes of this paper, "small local WoCs" is defined to be the four smallest WoCs in England and Wales i.e. Bristol Water, Portsmouth Water, SES Water and South Staffordshire Water.
[20] See https://www.ofwat.gov.uk/wp-content/uploads/2017/12/Final-methodology-1.pdf, p180.
[21] This report does not discuss whether a customer benefits test is appropriate or not, or whether small local WoCs face a higher cost of capital. This report also does not consider the extent to which the benefits that local WoCs deliver by virtue of providing additional comparator companies in Ofwat's benchmarking analysis (e.g. of costs and performance levels) may be lost if the local WoCs were to be financially unsustainable in the absence of a company-specific adjustment to the WACC (potentially leading to the takeover or mergers of these local WoCs with other companies). These issues are left for the small local WoCs to pursue separately if they wish.

2. What kinds of benefits would be relevant to demonstrating that small local WoCs deliver additional benefits for water customers?

In its PR19 methodology decision document, Ofwat states that when assessing the benefits that local WoCs deliver for their customers, it will have regard to similar tests to those it uses when assessing mergers.[22] In particular, Ofwat states it will assess the following questions:[23]

- Has the company had a beneficial effect on our cost benchmarks?
- Has the company had a beneficial effect on our service benchmarks?
- Are there benefits in other areas?

On the latter of the three categories, Ofwat notes "these factors may include, for example, development of new or innovative approaches that lead the sector forward where evidenced by the company in question".

In the Statement of Methods for assessing mergers, Appendix A1.4, Ofwat discusses how it will measure and quantify customer benefits. The key benefits it describes echo the bullets above i.e. "lower prices, higher quality or greater choice of goods or services … or greater innovation in relation to such goods or services for customers, including future customers, at any point in the chain of production and distribution (not just final consumers)".[24] The Statement of Methods then goes on to discuss other aspects of its assessment of benefits, which might be paraphrased in the context of a customer benefits test for a company-specific adjustment to the cost of capital as:

- How likely or certain are the benefits to be achieved?
- Whether the benefits are likely to accrue without the higher allowed cost of capital?
- Are the benefits expected to accrue within a reasonable period of time?
- Are the benefits likely to be sustained?
- Weighting of customer benefits

Ofwat's Statement of Methods for assessing mergers lists a range of types of benefits which have been expected to arise from past mergers, which might therefore provide an indication of some of the kinds of customer benefits that may be relevant for small local WoCs to demonstrate.[25] These benefits included:

- Operating cost savings;
- Increased interconnection of water networks;
- Improved planning of water resources enabling postponement of investment projects;
- Ability to pool and share best practice;
- Improved security of supply;
- Leakage reduction and metering;
- Improved service standards;
- Creation of better circumstances for genuine competition in the region;
- Increased opportunities for employees;
- Improved customer services;
- Increased customer confidence in water and sewerage services;
- Improvements in water quality;
- Improved sewage treatment;
- Greater use of local contractors;

[22] See Ofwat (2015) "Ofwat's approach to mergers and statement of methods" https://064f1d25f5a6fb0868ac-0df48efcb31bcf2ed0366d316cab9ab8.ssl.cf3.rackcdn.com/wp-content/uploads/2015/11/pap_pos20151021mergers.pdf

[23] See Ofwat (2017) "Delivering Water 2020: Our methodology for the 2019 price review; Appendix 12: Aligning risk and return", https://064f1d25f5a6fb0868ac-0df48efcb31bcf2ed0366d316cab9ab8.ssl.cf3.rackcdn.com/wp-content/uploads/2017/12/Appendix-12-Risk-and-return-CLEAN-12.12.2017-002.pdf, pp92-93.

[24] See Ofwat (2015) "Ofwat's approach to mergers and statement of methods" https://064f1d25f5a6fb0868ac-0df48efcb31bcf2ed0366d316cab9ab8.ssl.cf3.rackcdn.com/wp-content/uploads/2015/11/pap_pos20151021mergers.pdf, pp68-70.

[25] See https://064f1d25f5a6fb0868ac-0df48efcb31bcf2ed0366d316cab9ab8.ssl.cf3.rackcdn.com/wp-content/uploads/2015/11/pap_pos20151021mergers.pdf, Table A2.5

- Price reductions;
- Increased responsiveness to customer needs;
- More effective and accelerated investment programmes;
- Interest savings as a result of improved cash flows and ability to achieve more favourable finance terms;
- Access to international expertise; and
- Facilitation of informal exchanges on technical matters.

This is a long though not exhaustive list, and other areas of performance may also be relevant. However, the list illustrates the wide range of customer benefits which might be relevant to an assessment of the benefits that small local WoCs may be able to deliver. These benefits could be broadly categorised into cost savings and quality of service improvements, which might arise in a variety of ways. However, it is important to note that the list of benefits includes intermediate steps towards those ultimate objectives, such as different management approaches, increased responsiveness to customer needs, greater use of local contractors, improved employee morale and opportunities and factors which might be characterised as linking to innovation such as pooling of best practice and exchanging of information on technical matters.

Each of the above areas could be examined across a broad range of categories of costs and performance, not just at an aggregate level, reflecting the wide range of different ways in which Ofwat uses comparators in its merger assessments (which provides guidance as to the different kinds of benefits that small local WoCs might deliver for water customers). For example:

- Cost efficiency would need to be examined across a number of different sets of costs e.g. wholesale water, water network plus, water resources, residential retail, as well as for cost categories such as staff costs, power costs, materials costs etc;
- Higher quality of service would need to be considered across the full range of performance commitments (PCs), evaluated for different business units and price controls where relevant;[26] and
- Different management approaches to issues would need to be considered across a host of areas such as business planning, customer engagement, codes of practice and compensation schemes, social tariffs, tariff structures, innovation, Board leadership, transparency, governance, reporting of data and assurance in respect of information provided to Ofwat.[27]

[26] See, for example, https://064f1d25f5a6fb0868ac-0df48efcb31bcf2ed0366d316cab9ab8.ssl.cf3.rackcdn.com/wp-content/uploads/2015/11/pap_pos20151021mergers.pdf, pp74-75 for more detailed examples provided by Ofwat.
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3. How and why might being small and local help small local WoCs deliver additional benefits for water customers?

As illustrated in Table 3 below, small local WoCs have been among the leading companies in the English and Welsh water sector over the years since privatisation across a range of measures of performance.

Table 3: Rankings of small local WoCs' performance across a range of measures

	Bristol Water	Portsmouth Water	SES Water	South Staffs Water
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[37] See https://www.ccwater.org.uk/wp-content/uploads/2017/12/Water-water-everywhere-Delivering-a-resilient-water-system-2016-17.pdf
[38] See https://discoverwater.co.uk/amount-we-use
[39] See https://discoverwater.co.uk/loss-of-supply
[40] See https://www.theguardian.com/money/2018/feb/19/small-energy-suppliers-top-uswitch-customer-satisfaction-survey and https://www.citizensadvice.org.uk/about-us/how-citizens-advice-works/citizens-advice-consumer-work/supplier-performance/energy-supplier-performance/compare-domestic-energy-suppliers-customer-service/

But how and why have these small local companies been leading performers?

The objective of this study is to illustrate *how and why* small local WoCs *could* deliver additional benefits for water customers. The aim of this study is not, however, to suggest that small local WoCs are necessarily always better than large WaSCs or *vice versa*. Rather, the aim is to identify the relevant differences between small and large water companies that the small local WoCs would need to take into consideration when making a case that being small and local delivers additional benefits for customers.

A key input to that assessment is trying to understand what may be special or different about small local WoCs relative to larger water companies i.e. what characteristics (both positive and negative) does being small and local give rise to that other water companies do not have. We consider the benefits of being small and local below, but before considering the benefits we consider whether there might be any costs of being small and local. In this respect we note that one obvious potential cost of being small and local is that these small local WoCs are smaller than other water companies. In theory this could mean that small local WoCs are less well positioned to take advantage of any economies of scale available to larger water companies. And by virtue of being water only companies, these small local WoCs would be unable to take advantage of any economies of scope available to WaSCs. Box 1 below discusses some of the academic literature on this topic.

Box 1: past studies on economies of scale and scope in the water and wastewater industries

It might be anticipated that since water and wastewater activities are (or are thought to be) natural monopolies, there would be economies of scale in both activities such that larger companies would be able to provide services at lower unit cost. However, the academic literature appears mixed on this issue.

Saal, Arocena, Maziotis and Triebs (2011) provide a comprehensive literature review of studies on economies of scale in the water and wastewater industries globally and of economies of scope between water and wastewater. The authors summarised the evidence as suggesting:

- No strong evidence of economies of scope between water and sewerage activities; and
- Economies of scale exist in water services, but only up to a certain size.

The authors note, however, that further research is needed in several areas.

The evidence for the English & Welsh water and sewerage industries is also mixed. Most recently Saal, Arocena and Maziotis (2011) estimated that there are substantial diseconomies of scope between water and sewerage activities and suggested that optimal industry structure may be to have vertically integrated water-only companies and sewerage-only companies.[41] On the other hand, Bottasso and Conti (2009) undertook a detailed assessment of economies of scale for English and Welsh WoCs based on data from 1995-2005 and concluded:[42]

> "Scale economies are positive, albeit small, and tend to slightly increase with size; moreover, economies of scale resulted to be higher for firms located in high density areas."

The authors went on to recommend additional mergers in the South-East of England. Similarly, Cave (2009) suggested that mergers can lead to:[43]

[41] See Saal, Arocena and Maziotis (2011) "The cost implications of alternative vertical configurations of the English and Welsh water and sewerage industry".
[42] Bottasso and Conti (2009) "Scale economies, technology and technical change in the water industry: Evidence from the English water only sector", Journal of Regional Science and Urban Economics, Vol 39, p146.
[43] Cave (2009) "Independent Review of Competition and Innovation in Water Markets – Final Report", p4 and p13.

"efficiency gains, financing costs and resource optimisation ... [improve] management incentives, [enhance] the scope for the transfer of best practice between companies and [decrease] financing costs. In the case of neighbouring companies, there are also likely to be benefits from the better optimisation of assets, including water resources."

The studies above were focused on statistical analysis of data i.e. a "top down" analysis. Strategic Management Consultants (2002) considered these issues from a "bottom up" perspective and argued that (i) there are limited economies of scale in water treatment and production since while larger treatment works might be cheaper to build and operate on a unit cost basis (£/Ml/day), these larger plant would need to be located relatively close to the source of demand (e.g. urban centres) to offset the additional costs of transmission associated with moving water over longer distances;[44] but (ii) "… there are continuing returns to scale on many of the service and labour-based activities of the companies … which contribute to continuing cost reductions with scale at company sizes well above the optimum technical (operational) scale."[45]

Our discussions with small local WoCs have identified a number of hypotheses about the advantages that being small and local might give rise to. These include:

- Small local firms have more agile decision making structures;
- Small local firms are better at innovation;
- Small local firms are more consumer orientated; and
- Customers prefer to buy products and services from local companies (all else equal).

To assist the small local WoCs test whether these hypotheses might be worthy of further consideration we have examined the academic literature in these areas and case studies from some of the small local WoCs.

We focus on the academic literature because in order to determine that small local WoCs are able to deliver benefits for customers it is helpful to establish a robust causal link between being small and local and those benefits, not just a correlation between being small and local and delivering benefits for customers.[46] We note that the academic literature reviewed is not focused on the water sector, nor generally on the case of natural monopolies, but rather on companies operating in a wide range of other markets and sectors. The literature cannot therefore be regarded as *definitive proof* that the small local WoCs deliver additional benefits for water customers than larger water companies, but the literature shows ways in which the small local WoCs *could* deliver additional benefits. Table 3 provides evidence that small local WoCs do deliver customer benefits, without indicating the means by which they are able to do this. The academic literature articulates and test hypotheses as to the underpinning reasons why this might be. This report does not consider if small local WoCs deliver additional benefits in these ways; that is left for the small local WoCs to explore themselves. In this respect, the various case studies presented below are not meant to be exhaustive, nor do they each necessarily apply to all small local WoCs: it will be for the small local WoCs to each make their own case drawing on evidence and examples relevant to their own circumstances.

[44] See Strategic Management Consultants (2002) "Optimum Entity Size in the Water Industry of England and Wales: a Review of Factors which Influence the Size of Companies".
[45] See Strategic Management Consultants (2002) "Optimum Entity Size in the Water Industry of England and Wales: a Review of Factors which Influence the Size of Companies", pp40-41.
[46] The academic literature also identifies other ways in which small local companies might create benefits for customers (not just those identified through our discussions with small local WoCs), such as retention of employees or sourcing a higher proportion of goods and services from local suppliers, but these are not discussed in this report as our discussions with small local WoCs identified that these were not areas which they felt were likely to apply to the English and Welsh water sector.

Small firms have more agile decision making structures

The academic literature provides a number of examples of research which suggests that smaller firms – similar in size to WoCs – are able to benefit from more flexible and agile managerial structures due to a lower degree of hierarchy i.e. fewer tiers of management.

Louis Pondy (1969) hypothesised that this may be due to a positive correlation between size of administration and the size of a firm when observing the measure of ownership-management separation.[47] Similarly, Williamson (1976) has also demonstrated that the smaller the organisation is, the more likely that managers are more up to date with reality, and the closer the owners are to daily operations.[48] Furthermore, Arrow (1974) accounts for the loss of overall managerial coordination by high degrees of information loss and distortion which results from hierarchal levels within such a large organisation.[49]

Jennings and Beaver (1997) theorised that within a small firm[50] management processes cannot be separated from the personality set and experiences of key role players. The closeness of the key role players to the operating personnel and activities being undertaken provides key role players with additional opportunities to influence these operatives and activities directly.[51] Doing so allows managers within a small firm to continually monitor productivity as well as retain overall managerial coordination of their business.

Similarly, Miller and Rice (1967) emphasised that due to a lack of horizontal and vertical organisational constraints smaller firms tend to have greater internal fluidity that allows all stakeholders to have easy access to decision makers, greater willingness by managers to seriously consider ideas, lines of communication which are task rather than structure determined and a greater willingness to take risks.[52] Adding to this, Bright (1964) concurred stating that these are these characteristics which allow small firms to exploit "such advantages [that] outweigh the resource lead of a large firm".[53]

More broadly, Cannon (1985) describes the lack of structural rigidity within small firms in two areas: *internal openness* (information and decision flows in the firm are need-based and non-hierarchal) and *external openness* (the ease of establishing exploration opportunities in areas).[54] Both concepts of openness allow an organisation to benefit from ease of communication across the firm, consequently driving down internal costs and enhancing productivity.

The case studies below provide examples where the small local WoCs believe that their small and local nature enabled them to have more agile management structures that could respond to changing circumstances quickly.

Case study: Bristol Water's response to a large burst

Bristol Water told us that one illustration of its agile decision making structure was its response to a burst at Willsbridge over the period 18 – 20 July 2017. Bristol Water told us that:[55]

- it had identified increased flows through a flow meter at 11.30pm on 18 July and started receiving customer calls about loss of water at 1.16am on 19 July;

[47] Pondy, L. R. (1969), Effects of Size, Complexity, and Ownership on Administrative Intensity, in 'Administrative Science Quarterly', 14 (1), pp. 47–60.
[48] Williamson, O.E. (1976), 'Franchise Bidding for Natural Monopolies: In General and with Respect to CATV,' in Bell Journal of Economics, 7 (1), pp. 73-104
[49] Arrow, K. J., (1974), *The Limits of Organisation* (WW Nortain & Company), p. 55
[50] No definition of 'small' has been given within this theoretical paper.
[51] Jennings, P. L., and Beaver, G., (1997), The Performance and Competitive Advantage of Small Firms: A Management Perspective, in International Small Business Journal, 15, (2), p. 64
[52] Miller, E.J., and Rice, A. K., (1967), *Systems of Organisation*, (London: Tavistock Publications Limited)
[53] Bright, J.R., (1964), *Research, Development and Technological Innovation* (Homewood: R.D. Irwin Inc.), ct. Cannon, T., (1985), 'Innovation, Creativity, Small Firm Organisation', in *International Small Business Journal* 4 (1), pp. 34-41
[54] Cannon, T., (1985), 'Innovation, Creativity, Small Firm Organisation', in *International Small Business Journal* 4 (1), pp. 34-41
[55] See http://www.bristolwater.co.uk/wp/wp-content/uploads/2018/02/BW_Strategy-document_digital-version_1.1.pdf, p26

- the cause of the incident – a burst main in Willsbridge – was confirmed within an hour of the initial reports. It was unique to the site and appears to have been the result of ground movement and the complex pipework at the pumping station;
- the Willsbridge site was made safe by 2.30pm on 19 July, which allowed re-routing of supplies for other customers to start. Supplies were restored to customers without the burst being fixed;
- 35,000 properties lost supplies because of the burst, but the Ring Main and the re-routing of water meant only 14,000 were without water by 7am on 19 July;
- 8,000 further properties had supplies restored around 10pm on 19 July with the remainder by 5.30am on 20 July; and
- as part of its response, Bristol water set up a second call centre to manage the volume of calls was opened from 6am on 19 July, bottled water was delivered to customers requiring additional support from 7am that day and five temporary water supply locations, each with a number of water bowsers, were set up from 11.30am to mid-afternoon on 19 July (enabling customers to take as much water as they needed).

Case study: Portsmouth Water, Bristol Water and SES Water's response to the March 2018 freeze / thaw event

Bristol Water, Portsmouth Water and SES Water told us that they believed their response to the recent "freeze / thaw" event in March 2018 had been better because they are small local WoCs. All three companies highlighted that they had learned lessons from previous similar events (e.g. in 2009/10) and that they had undertaken a range of activities to prepare for the freezing weather that had been forecast and the expected impact the freeze and thaw would have on their networks and customers.

All three companies told us that they considered that many aspects of the way in which customers were supported and inconvenience was minimised was directly attributable to the operational characteristics of being a small local company. In particular the companies each pointed to a variety of factors including:

- close personal oversight of all activities by Executive Directors which, together with deep local knowledge and experience, enabled faster decision making and implementation of responses;
- employee commitment to attend and carry out customer related activities outside of normal working hours;
- detailed local operational knowledge leading to careful monitoring of treatment works, service reservoirs and local supply networks to ensure supply to local communities was not disrupted;
- awareness of the likely impact of the event (based on previous events) and well-rehearsed and agile event management procedures drawing on detailed local knowledge of employees; and
- an ability to target help to customers in vulnerable circumstances and areas where the threat to supplies were greatest, again based on local knowledge.

Small local firms are better at innovation

The academic literature also suggests that smaller firms may be more innovative than larger firms. For example, Adams (1982) discussed that it is due to small firms being in a 'fluid state' that they are then "shown to exhibit high rates of product innovation, informal organisation structure and entrepreneurial spirit."[56] Agreeing with this claim, Canback *et al.* (2006) concluded that "there is no evidence that larger, merged entities innovate more and grow faster. Instead, the opposite appears to be true: innovation and growth decline."[57] These conclusions concur with Acs and Audretsch's (1991) findings that small firms are more likely to have higher rates of marginal productivity due to their efficient production process. They find that on the bases of different US databases small firms contribute 2.4 times more innovations per employee than do their larger conglomerate counterparts.[58] They conclude that:

> "Combining individual firm records of R&D and innovative output over 700 enterprises, we are able to determine that, although larger firms may be more R&D intensive than their smaller counterparts, the productivity of R&D apparently falls along with firm size (…) That is empirical evidence suggests that decreasing returns to R&D expenditures in producing innovative output exists."[59]

A number of studies suggest that small and medium-sized firms, rather than large firms, conduct R&D more cost-efficiently.[60] One reason for this Vossen (1998) proposes is due to independent inventors in small firms being disproportionality more responsible for significant innovations.[61] However, more research has been done on how much more efficient small firms are compared to large firms when it comes to expenditure on R&D.[62]

For instance, Cohen and Klepper (1992) find that larger firms produce fewer innovations per dollar spent on R&D. They evidence that "smaller firms' produce more innovations than one would expect on the basis of their input".[63] A survey by the United States National Science Foundation (1976) indicates that the importance of small and medium sized organisations in the innovative process by showing that out of 'major' innovations launched in the US during the period 1953-1973, 48% came from small and medium sized firms with less than 1,000 employees. It was also calculated that the productivity of these firms (a comparison of their innovation rate with their expenditure on research and development) was four times greater than that of firms with over 1,000 employees. Importantly, the tenet of this finding, however,

[56] Adams, A., (1982), 'Barriers to Product Innovation in Small Firms: Policy Implications', in *European Small Business Journal* 1 (1), p. 67

[57] Canback, S., Samouel, P., and Price, D., (2006), 'Do Diseconomies of Scale Impact Firm Size and Performance? A Theoretical and Empirical Overview', Journal of Managerial Economics 4 1), pp. 27-70

[58] Acs, Z.J. and Audretsch, B. S., (1991), 'Innovation and Technological Change: An Overview', in Zoltan J. Acs and David B. Audretsch, eds., Innovation and Technical Change: An International Comparison (New York: Harvester Wheatsheaf). They measure a firm's innovative activity as the number of innovations recorded by the U.S. Small Business Administration in 1982 which were attributed to that firm. The data base was created by recording innovations appearing in new-product sections of technology, engineering and trade journals. While an innovation is defined as the commercial introduction of a new product, process, or service, in fact, by nature of the construction of the data base, most of the innovations are product innovations. Firms with fewer than 500 employees were considered to be small according to the standard used by the U.S. Small Business Administration.

[59] Acs, Z. J., and Audretsch, D. B., (1991), Innovation and Technological Change', pp. 12-3

[60] Levin, R.C., Klevorick, A. K., Nelson, R. R. Winter, S. G., Gilbert, R. Griliches, Z., Vol. 1987 (3), Special Issue On Microeconomics, pp. 783-831; Soto, J.H.d, (2009), 'The Theory of Dynamic Efficiency', (Routledge, Taylor & Francis Group: London and New York); McKenzie, R. B., (2007), 'In Defence of Monopoly: How Market Power Fosters Creative Production', (University of Michigan), p, 219; Cooper, A. C. 1964. R&D Is More Efficient in Small Companies. Harvard Business Review 42 (May-June): 75–83.

[61] Vossen, R.W., (1998), 'Relative Strengths and Weaknesses of Small Firms in Innovation', in *International Small Business Journal* 16 (3), pp. 88-94).

[62] The measure of a firm's innovative activity is the number of innovations recorded by the U.S. Small Business Administration in 1982 which were attributed to that firm. The data base was created by recording innovations appearing in new-product sections of technology, engineering and trade journals. While an innovation is defined as the commercial introduction of a new product, process, or service, in fact, by nature of the construction of the data base, most of the innovations are product innovations. Firms with fewer than 500 employees were considered to be small according to the standard used by the U.S. Small Business Administration.

[63] Cohen, W. M., Klepper, S., (1992), 'The Anatomy of Industry R&D Intensity Distributions', in American Economic Review 4, pp. 773-99

can be qualified by the fact that the *average* cost of a research worker in small firms was half their cost in other firms.[64] This finding is consistent with other research.[65]

In an effort to make better use of existing resources, small firms take advantage of knowledge spillovers from corporate R&D laboratories (i.e. from so-called "open innovation practices"). This allows small organisations to maximise their capabilities to achieve dynamic efficiencies in a cost-efficient way.[66]

As an example of this open networking practice, Batterink et al (2010) notes that in the case of small firms inter-firm relationships may not be motivated merely by economic and financial gain but rather, to address uncertainty and resource constraints, particularly in respect of a lack of managerial resources, which acts as a barrier to growth.[67] Open innovation practices provide an alternative strategy by which consumer-orientated small companies can access inter-firm resources at a low cost, addressing obstacles such as location, technological, internal, financial and human resources that impede new product development and access to consumer insights.[68] Additionally, open innovation ensures greater access to information, technologies and laboratory facilities that could take years and requires significant R&D investment to acquire in-house.[69]

Along similar lines, academic literature suggests small companies are also more likely to utilise and implement university-based research relationships. For example, Link and Rees (1990) hypothesise that "bureaucratization" in the innovation decision making process in larger firms inhibits not only inventiveness but also slows the pace at which new inventions move through the corporate system toward market.[70] They find that although large firms are more active in university-based research *per se,* small organisations appear to be able to utilize their university-based associations to leverage their internal R&D to a greater degree than large firms.[71]

The collaborations between the small local WoCs and universities summarised in the case study below are consistent with the academic literature summarised above.

Case study: Small local WoCs' collaborations with universities

Bristol Water told us that it had a long history of collaborating with universities and third parties to develop new ideas and approaches. A couple of examples that Bristol Water shared with us were:

- A collaboration with Imperial College London and Cla-Val to explore new technologies and system based approaches to improve the operational resilience, hydraulic pressure and assets utilisation of Bristol Water's water distribution networks. The project developed and implemented both analytical methods and control technologies to enable the concurrent design, operation and control of dynamically adaptive water distribution networks that automatically configure their connectivity and hydraulic conditions.[72]

[64] National Science Foundation (1976), *Indicators of International Trends in Technological Innovation,* (Washington: NSF-C889), p. 68
[65] Simonetti, R., Archibugi, D., Evangelista, R., (1995), Product and process innovations: How are they defined? How are they quantified? in Scientometrics 32 (1), pp. 77-89; Felder, J., Licht, G., Stahl, H., 'Factors Determining R&D and Innovation Expenditure in German Manufacturing Industries'. in Determinants of Innovation, pp. 125-154
[66] Acs, Z. J., and Audretsch, D. B., (1994), 'R & D spillovers and recipient firm size', in The review of Economics and Statistics, pp. 336-340
[67] Batterink, M.H., Wubben. E.F.M., Klerkx, L., *et al.,* (2010), 'Orchestrating innovation networks: The case of innovation brokers', in *Entrepreneurship and Regional Development* 22 (1), pp. 47-76
[68] Chestbrough, H., (2003), *Open Innovation: The New Imperative for Creating and Profiting from Technology* (Boston, MA: Harvard Business School) and Wynarczyk, P., and Piperopolous, P., 'Open Innovation in Small and Medium-Sized Enterprises', p. 4
[69] Chestbrough, H.M., Vanhaverbeke, W., and West J., (2006), *Open Innovation: Researching a New Paradigm* (Oxford: Oxford University Press); Wynarczyk, P., (2013), 'Open innovation in SMEs: A dynamic approach to modern entrepreneurship in the twenty-first century', in *Journal of Small Business and Enterprise Development*, 20 (2), pp. 258-278
[70] Link, A.N, Rees, J., (1990), 'University Based Research, and the Returns to R&D', 2 (1), pp. 25-31
[71] Link, A.N, Rees, J., (1990), 'University Based Research', p. 30
[72] See http://www.bristolwater.co.uk/wp/wp-content/uploads/2018/02/BW_Strategy-document_digital-version_1.1.pdf, p32

- Bristol Water collaborated with the University of the West of England (UWE) to develop an evidence base around water consumption by younger generations at university villages. The collaboration involved Bristol Water using the student village as an active testbed site to try different approaches to improving water efficiency, while simultaneously providing students an opportunity to learn and reducing UWE's water consumption.[73]

Portsmouth Water indicated that as part of the professional training it provides to its staff some staff undertake research projects of practical relevance to the company. For example, working with Southampton University a member of Portsmouth Water's staff developed a model based on new techniques in the field of Artificial Intelligence that now helps the company predict increases in turbidity levels in raw water to enhance the operation of its supply business.

The collaborations between one of the small local WoCs and a technology partner summarised in the case study below are also consistent with the academic literature summarised above.

Case study: SES Water's collaborations with a technology partner

SES Water told us of their association with technology partners to provide a testbed for innovations, with large organisations frequently approaching them because – in SES Water's view – the partners know that SES Water is able to respond much quicker than large organisations and can implement pilots quickly. An example of this is SES Water's partnership with Google, which is highlighted in SES Water's 2013 annual report:[74]

"SES Water became the first utility company in the world to pilot 'Google Maps Coordinate,' a software tool which uses the power of Google's mapping technologies to help companies like theirs 'pinpoint' mobile workers, share location data, and collect work-related data 'on the go'."

Timmons and Spenneli (2009) have also argued that small firms are structurally better equipped for high innovativeness due to less restrictive organisational controls.[75] They argue that this view is supported by the fact that most radical innovations come from small, entrepreneurial companies.

Small local firms are more consumer orientated

Consumer orientation refers to Naver and Slater's (1990) concept as "the organisational culture that most effectively and efficiently creates necessary behaviours for the creation of superior value for buyers"[76] and Rukert's (1992) definition as the "degree to which the organisation obtains and uses information from customers, develops a strategy which will meet customer needs, and implements that strategy by being responsive to customers' needs and wants."[77]

As noted above, smaller firms are usually characterised by relatively simple organisational structures and more cohesive cultures. And because they are often typified by a limited range of products and customers, this therefore makes it easier to gather and process customer or market information for decision making.[78] The case study below summarises an example of

[73] See http://www.bristolwater.co.uk/wp/wp-content/uploads/2018/02/BW_Strategy-document_digital-version_1.1.pdf, p34
[74] See https://www.waterplc.com/userfiles/file/annual_report_2013.pdf
[75] Timmons, J.A., and Spenneli, S., (2009), *New Venture Creation: Entrepreneurial for the 21st Century,* 8th ed. (Boston, MA: McGraw-Hill Irwin)
[76] Narver, J., and Slater, S., (1990), 'The effect of a market orientation on business profitability', in the *Journal of Marketing,* 54, pp. 20-35;
[77] Ruekert, R., (1992), 'Developing a Market Orientation: and Organisational Strategy Perspective', in *International Journal of Marketing,* 9, pp. 225-45;
[78] Appiah-Adu and Singh, S., (1998), 'Customer Orientation and Performance', p. 387

one of the small local WoCs being able to respond to consumer needs faster because of the local knowledge its management team possessed.

Case study: small local WoCs' management teams' local knowledge

Bristol Water's Refill programme is a free tap water initiative designed to reduce plastic pollution and promote healthy hydration by making refilling a water bottle easy, social and rewarding.[79] Bristol Water told us that this programme was:[80]

> "A recent example of the partnership working approach to innovation is the Refill campaign. Working with City to Sea, an app was developed which engages businesses and the local community in highlighting the social and community benefits in free public access to drinking water. The app includes 'gamification points' and provides local retailers with the opportunity to engage with the community, encourage custom, whilst also providing an essential public service. This innovation was driven by the wider environmental benefits of reducing single use plastic bottles as well as our aspiration to encourage greater recognition of the value of our drinking water, in terms of both availability and quality. The metal and wooden "Bristol Water Refill" bottles have become a local status symbol when out and about in Bristol and surrounding areas."

Bristol Water told us that it had been the first water company to integrate the Refill campaign with its other consumer campaigns, and to implement the programme quickly, because of its agile decision making structure: the local knowledge of Bristol Water had of its community stakeholders, in Bristol Water's view, enabled it to know whether the campaign would work in its local area, the sites where the programme could most easily and successfully be implemented and whether any bespoke arrangements might be required in different locations.

Similarly, Portsmouth Water indicated that as part of its working in the community, it had distributed water bottles to schools over the last ten years.

It is also contended that customer orientation is likely to be a vital determinant of success for small firms – and therefore an area of greater focus - because such firms generally lack the financial resources to explore other sources of business profitability.[81]

Brockman et al (2012) also maintain that due to the lack of organisational restraints within small firms, they are more likely to excel in consumer orientation due to the closeness between upper management and the customer.[82] They go on to argue that consumer orientation is a significant tool for small firms to distinguish themselves from large firms. The case study below shows customer satisfaction performance by small local WoCs which is consistent with these findings.

Case study: small local WoCs' customer satisfaction

The Institute of Customer Service conducts the UK's largest cross-sector benchmarking study, gathering over 40,000 responses from more than 10,000 customers about their levels of customer satisfaction across 13 different sectors of the economy including utilities. The study considers not only an overall measure of customer satisfaction, but also whether customers would be likely to recommend the business in question ("net promoter score") and the level of customer effort involved in completing transactions, enquiries or

[79] See https://www.refill.org.uk/refill-scheme/refill-bristol/
[80] See http://www.bristolwater.co.uk/wp/wp-content/uploads/2018/02/BW_Strategy-document_digital-version_1.1.pdf, p29.
[81] Pelham and Wilson, (1996) 'A Longitudinal Study'
[82] Brockman, B. K., Jones, M. A., Becherer, R. C., (2012), 'Customer Orientation and Performance in Small Firms: Examining the Moderating Influence of Risk-Taking, Innovativeness, and Opportunity Focus', in *Journal of Small Business Management* 50 (3), pp. 429-446

requests. A high customer satisfaction and net promoter score is good, while a low level of customer effort is also good.

The UK Customer Satisfaction Index (UKCSI) utilities sector report for January 2018[83] included Bristol Water for the first time. The published data does not show the exact performance of Bristol Water, but the company has told us that the data shows (i) Bristol Water was the third best utility on UKCSI (level with M&S Energy and Yorkshire Water), behind OVO Energy and Utility Warehouse; and (ii) on net promoter score, Bristol Water was the fourth best utility, after Dwr Cymru, OVO Energy and Utility Warehouse, meaning Bristol Water were the only water utility to feature at the top of both metrics. Bristol Water also told us that in a larger sample survey in January 2017 Bristol Water achieved a score equivalent to 15th place for all retailers, well above the score achieved by any other utility.

Portsmouth Water have also shared with us the scores they achieved under the UKCSI in July 2017. Those scores show that Portsmouth Water achieved the second highest score by a utility under the UKCSI, behind only Ovo Energy, and net promoter and customer effort scores well above average for not only utilities, but across all sectors covered by the study. Portmouth Water also told us that whilst the company is not large enough to be included in the national UKCSI report, its score is higher than all water and sewerage companies and it has just been accredited by the Institute of Customer Service for its customer service.

Further, Appiah-Adu and Singh (1998) argue that because of their commitment to innovation, this forces smaller firms to become externally focused and, thus, more consumer orientated.[84]

Along similar lines, Brockman et al (2012) argues that small firms, with more agile management structures, may be able to respond faster to changes in customer attitudes. For example, when a potential source of competitive advantage emerges, firms that engage in lengthy reviews or which are more risk-adverse, will be left behind, whereas those that respond quickly emerge as market drivers. Thus Brockman et al (2012) infers that a greater propensity toward risk-taking will enhance the influence of consumer orientation on small firm performance.[85]

The case study below provides an example of small local WoCs responding rapidly to a change in circumstances.

Case study: SES Water's and Portsmouth Water's approach to social tariffs

SES Water told us that its social tariff scheme had been very successful and exceeded expectations. SES Water indicated to us that over 8,000 of its customers (by March 2018) had taken up the scheme, which according to its calculations was the second highest rate per 1,000 customers of any company in England even though SES Water's region has lower than average levels of deprivation. SES Water also told us that this take up rate was well in excess of the 5,000 customers that had been expected and that the company had fully supported this despite the £2 additional amount that all non-eligible customers had agreed to pay (as part of PR14 customer engagement) only being enough to fund the 5,000 customers expected i.e. SES Water had absorbed these additional costs, rather than reduce the 50% discount on their water bills which eligible customers are entitled to under the scheme.

SES Water has told us that it considers that the way in which its social tariff has been developed, implemented and managed reflects that it is a small local WoC, including:

[83] UKCSI (January 2018) Utilities sector report https://www.instituteofcustomerservice.com/research-insight/research-library/ukcsi-utilities-sector-report-january-2018

[84] Appiah-Adu and Singh, S., (1998), 'Customer Orientation and Performance', p. 391

[85] Brockman, B. K., Jones, M. A., Becherer, R. C., (2012), 'Customer Orientation and Performance in Small Firms', p. 431

- being small and local enabled an agile development and implementation programme, facilitating the roll out of the scheme quickly on a simple trial basis;
- being small and local enabled rapid decision making to approve the trial scheme being funded by the company and its shareholders; and
- being small and local had helped to foster high levels of acceptability for the customer-funded successor scheme, including among those non-eligible customers funding the scheme.

Portsmouth Water echoed many of those sentiments in the information it has provided to us. In particular, it considered that the success of its social tariff scheme – where take-up has exceeded its expectations and customers on the tariff have been able to pay the reduced social tariff - was due in part to good customer support of the company's proposals reflecting the positive reputation it has with its customer base, the simplicity and clarity of its scheme that was partly only possible due to the smaller geographical area it serves and took into account that many of its customers pay two separate bills (wastewater services being provided by Southern Water).

Consumers prefer products and services from a local company (all else equal)

There is some evidence in the academic literature to suggest that customers prefer to buy products and services from the local region in some circumstances.

For example, Hauser (1993) and Balling (1995) found that products (particularly food) identical in every respect, except for their province and region of origin, were evaluated differently by consumers.[86] Ittersum et al (2003)[87] and Obermiller and Spangenberg (1989)[88] both explore the reasons for why customers are more likely to prefer products from certain local regions and identify that this may be due to the emotional response of consumers to regional stereotypes.

Green and Peloza's (2011) research implied that a small portion of consumers could derive 'social value' from consuming a unit of locally produced product if the consumer derived value from the producer's efforts to look after the environment.[89]

We also observe that the local source of services and products is sometimes used in marketing campaigns. For example, PlusNet – an internet services provider – emphasises its connection with Yorkshire as part of its advertising campaigns. Similarly, KCOM, the fixed line telecoms provider in Hull, believes it has a "duty to support the city whenever we can" and is proud of its connection with the city and local community including the very high proportion of its staff and supply chain who come from the local area.[90] KCOM believe that being local enables them to achieve higher levels of customer satisfaction.[91]

The case studies presented below suggest that customers of small local water companies perceive some benefits from receiving their water service from a small and local company.

[86] Balling, R., (1995), 'Der Herkunftsapspekt als Erfolgsfaktor fur das Lebensmittelmarketing', in *Ber Landwirtsch,* (73), pp. 83-106 and Hauser, A., (1993), Verbraucherpraferenzen fur Nahrungmittel aus der Naheren Umgebung; Analyse einer Reprasenrativenbefragung bei Nordrhein-Westfalischen Verbrauchernt, in *Agrarwiestschaft Zeitschrift fur Betriebswirtschaft, Marktforschung und Agrarpolitik,*(Sonderheft), p.141

[87] Sheth, J.N., Mittal, B., Newman, B.I., (1999), 'Countries and the products: a cognitive structure perspective, in *J Acad Mark Sci,* 21 (4), pp. 323-30

[88] Obermiller C. and Spangenberg, E.,, (1989), 'Exploring the effects of origin labels: and information processing framework, in ed. J.F. Sherry and B. Strernthal, 'Advances in consumer research' 16, pp. 454-9

[89] Green, T. and Peloza, J., (2011), 'How Does Corporate Social Responsibility Create Value for Consumers', in *Journal of Consumer Marketing* 28 (1), pp. 48-56

[90] https://www.kcomhome.com/discover/categories/kcom-news/twelve-things-kcom-has-done-in-the-community-in-the-past-12-months/

[91] https://www.kcomhome.com/products/phone/features/

Case study: Portsmouth and SES Water customer research

SES Water provided us with customer research it commissioned at PR14 about the perceived benefits of being small and local.[92] That research indicated:

- Respondents considered the key advantages of being served by a small company were high levels of customer service, ability to respond quickly and accountability (p4);
- The majority of respondents overall exhibited a strong preference for being served by a small rather than a large company: three respondents across all four of the groups were neutral about this; there were no respondents who would prefer to be served by a large rather than small company (p6);
- Respondents also believed that being served by a local company provides them with a superior level of customer service compared to being served by a national or international company (p6); and
- The majority of respondents had a strong preference for being served by a local rather than a national/ international company. Three respondents across all four of the groups were neutral about this. There were no respondents who would prefer to be served by a national/international rather than a local company (p8).

Portsmouth Water also provided us with customer research it commissioned at PR14 about the perceived benefits of being small and local.[93] That research indicated:

- Respondents felt that the most important benefits of being served by a small company related to personal service, local employer, accountability and high levels of customer service (p6);
- The majority of respondents exhibited a strong preference for being served by a small rather than a large company. Younger higher social grade respondents were generally more ambivalent to the size of their supplier, being more focussed on bill levels. However, assuming there was no major impact on the level of bills they also prefer to be served by a small company (p7);
- Respondents displayed a spontaneous willingness to pay a premium on their bills if this ensures that local employers are able to continue to operate in the area (p8); and
- Across the majority of respondents there was a strong preference to be served by a local company and a strong resistance to any change in the existing model. There was some spontaneous statement of willingness to pay a premium on the bill to maintain the status quo. However, higher social grade younger respondents were slightly more ambivalent to the local status of a company than respondents from the other groups. As mentioned above there were generally more focussed on price than other factors. However, if price were equal to or lower than national/international companies they would rather be supplied by a local supplier (p9).

[92] See Accent (2014) "Small company premium: report for Sutton and East Surrey Water", June.
[93] See Accent (2014) "Understanding Customer Support for a Financing Premium: report for Portsmouth Water", June.

4. How might the additional benefits delivered by small local WoCs be quantified and valued?

The ways in which small local WoCs might deliver additional benefits for customers described in the previous chapter – more agile decision making, better innovation, more customer orientation – could translate into lower costs, higher standards of service or a combination of the two. These additional benefits will need to be converted into an impact on customer bills (£/year) which can then be weighed against any increase in customer bills due to a company-specific cost of capital adjustment.

To value these benefits, the costs and standards of service of the small local WoCs would need to be compared to a counterfactual where costs and standards of service do not take into account the advantages available to small local WoCs (net of any possible disadvantages such as access to economies of scale and scope discussed earlier). The net-benefits will then need to be forecast over an appropriate time frame and discounted to present value terms using an appropriate discount rate.

Noting the above, to assist the small local WoCs quantify the additional benefits they deliver for water customers, this section considers:

- How the small local WoCs could define the counterfactual to compare their own costs and standards of service to;
- How the small local WoCs could quantify the additional benefits they deliver i.e. the cost savings and higher standards of service they deliver relative to the counterfactual and any implications this has for Ofwat's determination of efficiency and quality of service challenges for the wider water industry;
- How the small local WoCs could forecast those additional benefits into the future; and
- How the small local WoCs could discount those future benefits into present value terms.

Defining the counterfactual to small local WoCs

There may be a number of different approaches available to defining the counterfactual.

If a small local WoC was not operating in a particular region, another water company would be. In practice that could be a larger WoC or a WaSC. The small local WoCs will need to consider if they want to define the counterfactual as a particular company operating in their place e.g. Wessex Water operating in the Bristol Water region. We note it may not be practical to try and assume some particular scenario e.g. a particular WoC or WaSC operating in a given area in all cases. In any case, the costs and standards of service of that other company operating in their place may not be easy to define e.g. it would not necessarily be appropriate to assume that company could achieve the same efficiency and quality of service in the small local WoC region if there are important differences between the small local WoC's region and the other company's region.

An alternative approach would be to assume that the costs and standards of service which would prevail in their regions would be equal to an industry average cost and standard of service. This approach would not necessarily appropriately take into account the circumstances of the small local WoC's region.

Another approach would be to define the costs and standards of service that the small local WoC would deliver if it did not take advantage of the various benefits identified earlier i.e. if it did not have more agile decision making, better innovation and more customer orientation. This approach is potentially the most appropriate theoretically, but would require a degree of judgement to define in practice.

The counterfactual scenario will not only need to consider the current situation, but also forecast the future. Unless there are good reasons to anticipate that the differences in costs and service standards between the 'default' position of a small local WoC providing services

in a region and the counterfactual would change over time, it may be appropriate to simply assume that the differences in costs and service standards would persist into perpetuity. That is not to say that the level of costs and services would be unchanged, just that the difference between the two scenarios would be the same over time i.e. this approach would assume that the small local WoC maintained its current performance advantage into the future.

Quantifying the current and future additional benefits delivered by small local WoCs

Ofwat has previously indicated it uses comparators in benchmarking in a wide range of areas.[94] Small local WoCs may wish to consider the additional benefits they deliver in all of these areas, but for simplicity we refer to the key areas of benefits as cost savings and higher standards of service.

Once the counterfactual is defined, a simple comparison between the costs and service standards under the counterfactual and the default scenarios should provide an indication of the additional benefits delivered by small local WoCs *within their own regions*. These additional benefits would need to be quantified. Different kinds of benefits delivered by small local WoCs might be converted to monetary terms in different ways. For example:

- Current efficiency savings should be relatively easy to express in monetary terms, but future efficiency savings will need to be forecast and discounted into present value terms;
- To convert the benefits of better standards of service (better PCs) into monetary terms, willingness to pay data might be used or the financial rewards/penalties applied under Outcome Delivery Incentives (ODIs) since these provide a measure of the value, in monetary terms, of a one unit increase in performance of a particular kind;[95] and
- Measuring and quantifying other benefits (such as innovation or treatment of vulnerable customers etc) may be more difficult than for cost savings or higher standards of service, but if those benefits can be translated into either an impact on efficient costs or standards of service, the methodologies discussed under the first two bullets can be applied. Alternatively, if the value of those benefits can be quantified directly, those values can simply be added to any other benefits identified.

The discussion above focuses on the additional benefits delivered by small local WoCs *within their own regions*, but it does not take into account any spill-over benefits created for customers of other water companies e.g. via Ofwat's benchmarking of costs and performance across the industry.

A company's current relative efficiency performance is not necessarily a perfect indicator of its future relative efficiency performance. Some companies which are leading performers currently may not be in future and *vice versa*. Accordingly, to forecast future benefits arising from relative efficiency, consideration has to be given to the likelihood of company's relative rankings changing over time.

This issue was specifically considered by the Competition Commission (CC) as part of the merger of South Staffordshire Water and Cambridge Water in 2012.[96] In that case the CC noted that "there does appear to be some positive correlation in companies' ranks across years, although occasional substantial movements in rank are also observed" and went on to apply three different methodologies (the "changes approach", "permutations approach" and "transitions approach") to predict the probability of movements in rankings in future (based on historical movements in rankings). These three methodologies are described in detail in the CC's decision documents and might provide a template for small local WoCs to use to forecast the likelihood of their performance remaining (or becoming) sector-leading in future.

[94] See https://064f1d25f5a6fb0868ac-0df48efcb31bcf2ed0366d316cab9ab8.ssl.cf3.rackcdn.com/wp-content/uploads/2015/11/pap_pos20151021mergers.pdf, Appendix A2

[95] The value of a one unit increase in performance can be calculated as the total ODI reward available for exceeding a particular Performance Commitment and then dividing that reward by the number of units of incremental performance improvement that would have to be delivered to achieve that reward.

[96] See http://webarchive.nationalarchives.gov.uk/20140402204344/http://www.competition-commission.org.uk/assets/competitioncommission/docs/2012/south-staff-cambridge-water/final_appendices_and_glossary.pdf, Appendix F, paragraph 19 and following.

There is of course some uncertainty around any forecasts of additional benefits delivered by small local WoCs. Reflecting this, the small local WoCs may wish to consider a number of scenarios, or at least a central case and conservative downside case.[97] The latter might provide a conservative estimate of the additional benefits delivered by small local WoCs, which could provide Ofwat and the industry with an estimate of the minimum benefits a small local WoC is likely to deliver. This could be particularly useful if this minimum estimate exceeds the costs of a company-specific cost of capital adjustment.

In order to forecast the future additional benefits they deliver, small local WoCs will need to form a view on an appropriate period over which to forecast those benefits and the costs which they need to be weighed against. We note:

- One approach would be to forecast over the next price control period i.e. 2020-25. This would reflect the period over which any company-specific adjustment to the cost of capital at PR19 would apply;
- An alternative would be to forecast the costs and benefits over a longer period, say AMP7 and AMP8, though this would be unlikely to produce materially different results to forecasting only over AMP7 unless the costs or benefits of small local WoCs are expected to increase/decrease materially during AMP8. Forecasting further into the future would also necessarily introduce additional uncertainties into the calculations; and
- It may also be arguable that the benefits of allowing a company-specific adjustment to the cost of capital at PR19 could persist beyond AMP7 e.g. if the adjustment to the cost of capital enabled the small local WoCs to deliver sector-leading performance over AMP7 which was then translated into performance challenges applied to other water companies during AMP8 and beyond. In that case, the small local WoCs could compare benefits forecast over a longer period to costs incurred during AMP7 only, but the benefits would need to be adjusted to reflect that the small local WoCs would only deliver sector leading performance during AMP7 (but not beyond).

In our view, the third of these options is theoretically most appropriate because the only costs which are being allowed at PR19 are those falling within the 2020-25 period, but the benefits of allowing those costs might persist beyond the 2020-25 period. The third of the options may, however, have some practical challenges to implement. If the small local WoCs believe they are able to robustly apply this methodology then we would recommend doing so, but if it is not possible to apply this approach robustly, then the first and second approaches would both be reasonable alternatives. The first approach would be easier to implement than the second approach and would deliver the same conclusion unless the profile of costs and benefits is expected to change from AMP7 to AMP8, so we would suggest adopting the first approach in preference to the second approach except where costs and/or benefits are expected to be materially different in AMP7 and AMP8.

Discounting forecast additional benefits into present value terms

As we noted earlier, in its PR19 methodology decision document Ofwat states that when assessing the benefits that local WoCs deliver for their customers, it will have regard to similar tests to those it uses when assessing mergers.[98] In its merger guidance, Ofwat set out its preferred approach to calculating the present value of future benefits from mergers:[99]

> "We will discount future monetised impacts based on the Treasury Green Book social discount rate of 3.5%. Where monetised impacts are not possible we will consider quantitative and qualitative evidence on relevant customer benefits, taking into account supporting evidence on the potential scale. We will place less weight on relevant customer benefits that are less certain, do not accrue over a reasonable period of time or are less likely to be sustained. We will give less weight to relevant customer benefits

[97] The CC's approach in the South Staffordshire and Cambridge Water merger also recognises that there is uncertainty around these forecasts by assessing the probability of a water company achieving sector leading performance in future.

[98] See Ofwat (2015) "Ofwat's approach to mergers and statement of methods" https://064f1d25f5a6fb0868ac-0df48efcb31bcf2ed0366d316cab9ab8.ssl.cf3.rackcdn.com/wp-content/uploads/2015/11/pap_pos20151021mergers.pdf

[99] See https://064f1d25f5a6fb0868ac-0df48efcb31bcf2ed0366d316cab9ab8.ssl.cf3.rackcdn.com/wp-content/uploads/2015/11/pap_pos20151021mergers.pdf, p70

> that are a long way in the future, for example beyond ten years, due to the potential that these incremental benefits will be eroded by improvements elsewhere in the industry as other water companies catch-up with the performance of the merged entity."

This would suggest that Ofwat's preferred approach to discounting forecasts of future benefits delivered by small local WoCs is to use the HM Treasury Green Book social time preference rate of 3.5%.

We note that this approach would be consistent with the CC's approach to discounting the future detriment of a merger in the South Staffordshire Water and Cambridge Water merger case.[100] The use of HM Treasury's Green Book social time preference rate would also be consistent with the general approach taken to discounting expected future benefits in cost benefit analyses.

Noting the above, the small local WoCs might reasonably use the social time preference rate to calculate the present value of the expected future additional benefits that being small and local would enable them to deliver for water customers.

[100] See http://webarchive.nationalarchives.gov.uk/20140402204344/http://www.competition-commission.org.uk/assets/competitioncommission/docs/2012/south-staff-cambridge-water/final_appendices_and_glossary.pdf, Appendix H, paragraph 6.

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