COMMUNITY RISK REDUCTION GUIDANCE NOTE No. 2

THE "*ACUITY*" MODEL OF COMMUNITY RISK REDUCTION

This guidance note describes the principal features of the "Acuity" model of Community Risk Reduction, developed by Alchemy Management Solutions from their experience in applying effective new approaches in the UK. Contexts in different countries and states may vary but the principles of the model are equally applicable.

How do we know this approach works?

Fire deaths in the UK are at a 50-year low. This has not happened by accident. It is the result of a concerted and innovative effort to get to the heart of what really makes a difference for local people, businesses and communities – stopping fire from happening.

This involves a deeper level of understanding about how risk presents itself across communities and its impact if unchecked. This is a data and intelligence-driven process that develops a more sophisticated picture of risk based on where and how people live, how lifestyles and human behaviour affect risk ratings, and how people interact with their built environment. It helps to define and quantify vulnerability within the community.

The model is presented as a two-stage process; first, the basic process model and, second, the "expanded model" which puts the process model in its operational context.

"Acuity" - The Process Model

The process model has five stages which we will cover briefly in turn.
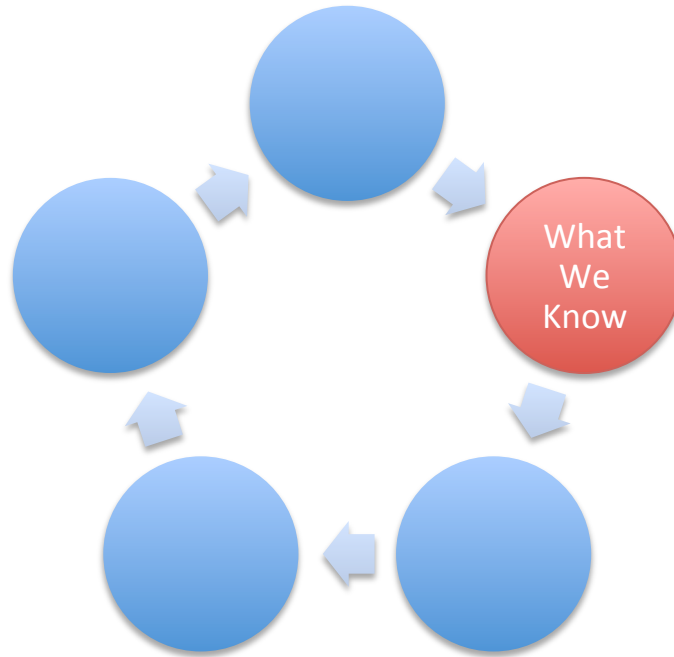
Stage 1   "What We Know"

This is about collecting, analysing and displaying all the relevant data collected through the activities of the services – incident data on frequency, type, location, and time of day for example. It starts to build a real picture of the day-to-day risk in the Fire Department's jurisdiction and, using a variety of metrics, allows risk ratings to be applied to assist in determining resourcing priorities. This is more than cataloguing the physical risks associated with building types and industrial processes; it addresses the dynamic and complex risk created by the community's inhabitants and its social makeup

This is the **first stage** in developing a comprehensive "**risk picture**" and is likely to build upon what may be "instinctively understood" but not necessarily incorporated within response and deployment plans in a way that currently has the most impact. Combining with suitable software tools allows this knowledge to be presented in a clear and very visual way, transforming complexity into easily discernible patterns and trends.
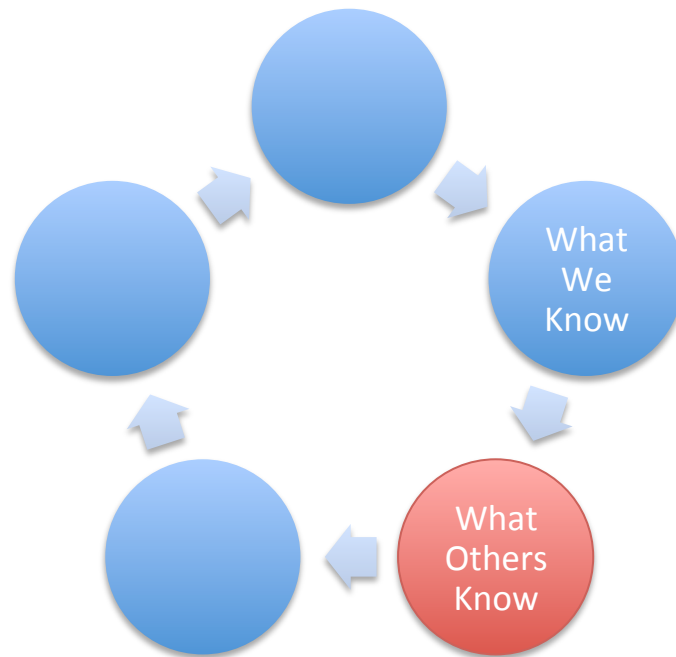
Stage 2   **"What Others Know"**

This stage collects, analyses and displays all potentially relevant data that is held by other services and agencies such as crime data, census information, socio-demographic analysis (often done by marketing agencies), health and social care/welfare information and other lifestyle-related data. This can range from readily available raw data to processed material already revealing valuable intelligence to the owning agency. Multi-disciplinary concepts can be used, drawing on data analysis approaches used in other sectors such as transportation, retail, IT and marketing.

The **risk picture** is now becoming richer and more detailed. It will contain important data about risk factors that would not normally be available to fire departments but will nevertheless tell them a lot about the drivers of the risk and so where and how best to target resources for the best effect. The risk picture now contains much more accurate and useful data about the lifestyle factors that our experience tells us drive fire risk factors in communities.
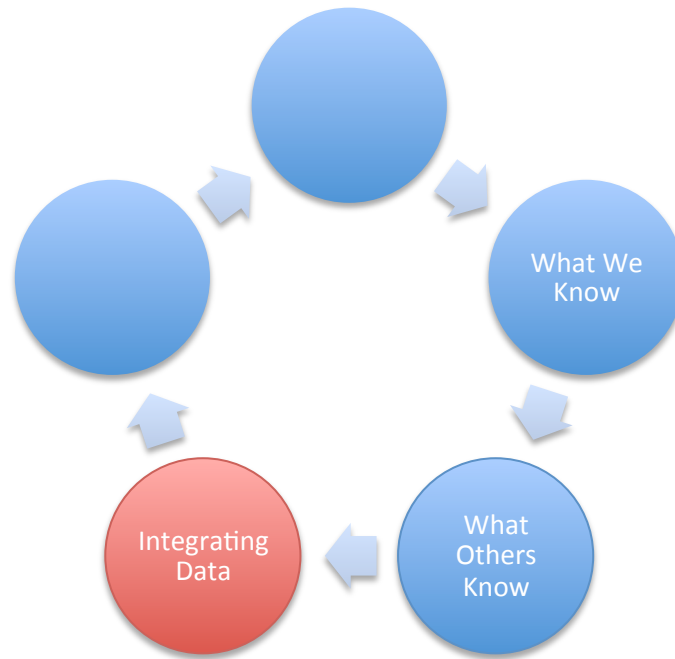
Stage 3   **"Integrating Data"**

By adding what can be gleaned from other sources to the service's own information gathered in Stage 1, a much more detailed set of "risk overlays" emerges. It may come as no surprise that agencies will have similar geographical risk maps (given the obvious links between socio-demographic circumstances and fire, crime and health issues). However it is the level of detail and "granularity" that clinches the deal. The key patterns and determinants of risks begin to emerge. Some of this maybe intuitively known but, equally, long held preconceptions are questioned. The scene is set for future strategies informed by demonstrable evidence.

Spatial and correlative data analysis reveals the determinants of risk likelihood and impact. Mapping this gives you a vivid visual picture of risk. At this point we can also begin to apply **predictive modelling** to forecast future trends. Not only can this help in future financial planning, but it will also provide the sort of convincing data needed to work better in partnerships across local agencies, realizing economies of scale and mutual benefit.

This is both a **dynamic** and **iterative** process, allowing for continued developments to inform the overall **risk picture.**
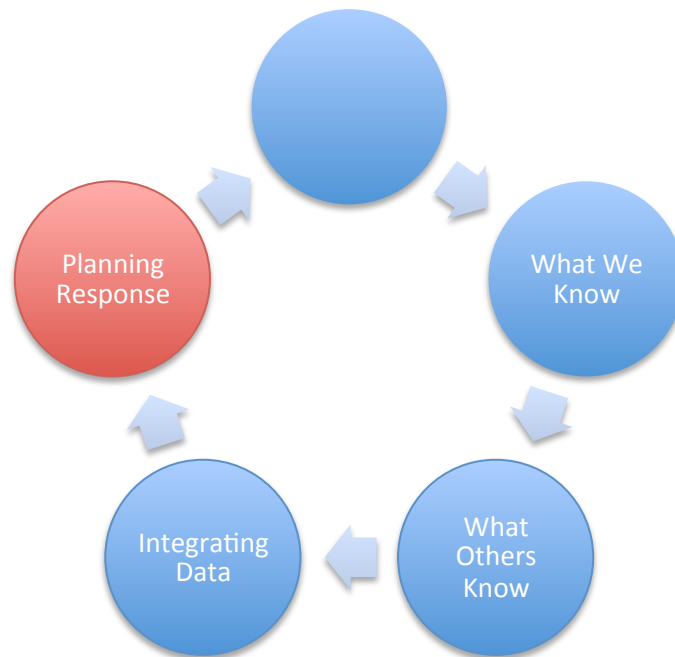
Stage 4   **"Planning Response"**

Once all the data is assembled, validated and represented in risk map overlays, it is the time to consider the deployment and application of various interventions to tackle that **risk picture**.

Response resources can be adjusted and relocated with a sound business case to support it, preventative interventions can be fine-tuned and tailored to individual circumstances and the prevailing demographics, and if neither is likely to have the impact required we can consider what proactive code protection measures could be used (e.g. sprinklers or other fixed installations). Pilot studies can be conducted within the framework of the model to test risk improvement with the approach being statistically validated.

Stage 5   **"Review Against Success Metrics"**

Like any good strategy, you need to know where you're trying to get to and you need a means of knowing when you get there. Defining success criteria, or metrics, in advance is an important component of the model. You cannot assume that, despite the quality of the data you have gathered in the early stages of the model, you will achieve all your desired outcomes first time. A planned review process is designed to enable learning, the improvement of future programs and to generate helpful evidence of progress that can be used to garner a broad base of support for further action and investment.

This, then, is the basic Acuity Process Model. However, departments do not operate in isolation; they are part of, and dependent upon other bodies, agencies and events that form the "environment" for the department or organization. The process model needs, therefore, to sit within a broader model that describes this environment and highlights how the CRR approach interacts with, and positively affects this environment.

We call this the "expanded model".

The Expanded Acuity Model
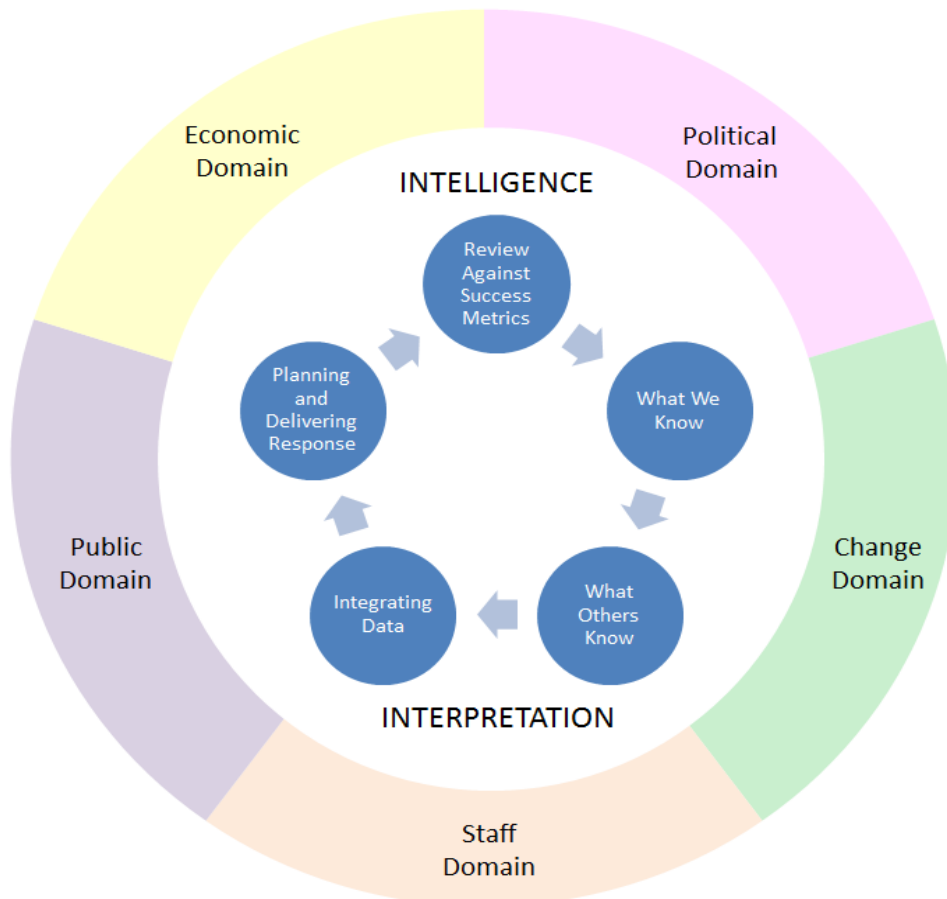
Leading in Different Domains

The Political Domain

Where departments or organizations operate as part of a local government arrangement – as is the case across most of the USA – they derive their legitimacy and purpose from the local democratic structures. Budgets, strategies and oversight are common functions exercised by local political structures and mean that department leaders will need to engage, influence and form productive personal relationships based upon trust, confidence and reliability. Different areas will prioritise different issues, depending upon local circumstances. Leaders will spend significant time and effort understanding these issues and finding ways of aligning

their desired strategies to support political aspirations. Gaining political support for CRR programs is often critical in securing the support – or at least the co-operation of other agencies in providing and analyzing risk-relevant data. And developing a more sophisticated appreciation of the benefits of new approaches – particularly where local politicians may come under significant pressure from citizens worried about change or labor unions seeking to protect terms and conditions – is a key area of activity for local department leaders.

The Economic Domain

Increasingly, public services are being expected to justify the expenditure of public money by demonstrating "value for money". Historically, many treasury departments have been content to financially support fire departments as a kind of insurance policy – there when you needed it but otherwise largely invisible. Times have changed, particularly since the financial crisis of 2007/8. In that context, one of the more powerful and persuasive arguments deployed by department leaders in the UK was to highlight the broader savings to the national economy by saving lives, preventing deaths, preventing property loss through fire, and effectively collaborating with other public bodies to share expertise and resources. Crafting a "narrative" to accompany CRR initiatives will be stronger in the current climate if it explicitly addresses the economic benefits of success.

The Public Domain

In terms of introducing significant change in department focus and activity, this has often proved to be the most challenging domain in the UK. Experience shows that local people are often highly suspicious and even fearful about changes in emergency service provision. "Change" is often perceived as synonymous with "loss" in public debate and department leaders will need to work both hard and sensitively – and with tenacity – to ensure that a degree of public support and acceptance is given to CRR initiatives. It is difficult to overstate the need to put effort into this domain.

The Staff Domain

Fire Departments are labor-intensive organizations and likely to remain so however fast technology continues to evolve. CRR programs as part of a broader organizational transformation effort will require a lot of effort being given to training, briefing and reorienting staff in support of a new approach. This is not a "given". The UK experience is that there was initially considerable resistance to shifting the priority from response to prevention. This was due to a number of reasons; a fear that this would lead to fewer jobs or changed conditions of service, that somehow it signified a reduction in the status of firefighting response, and that CRR programs were "not why I joined the job". Over time, many of these can be overcome but it needs to be faced realistically that not all staff will be supportive or perhaps even capable of making the transition. Inevitably therefore, some organizational re-shaping may need to take place. The leadership challenge will vary

depending upon local staffing arrangements, labor relations and political contexts, but the UK departments that have had most success have done so, at least in part, by changing the skills, attitudes and behaviors of their staff.

The Change Domain

As we have covered elsewhere, CRR can be part of a wider process of organizational transformation. Indeed to ensure CRR becomes an embedded process and doctrine within the department it necessarily needs to be regarded as a strategic change and not just a set of isolated initiatives separate from core business. Leaders will need to acquire and develop skills in managing change and for more information on this please refer to the Guidance Note on Managing Change.