Less Crime, More Vibrancy, by Design

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Abstract

This chapter explores how Crime Prevention Through Environmental Design (CPTED) and the allied approach of Situational Crime Prevention (SCP) relates to an emerging perspective, the 'Vibrant Secure Function Framework' for safer and more sociable cities. This is a project-led, exploratory merger of the Security Function Framework pioneered by Ekblom (2012), and the Social-Safer design-led approach championed by Thorpe and Gamman (2013) and the team from the Design Against Crime Research Centre and Socially Responsive Design Unit at University of the Arts London (UAL). First, we introduce an example of this emerging framework, as applied within a project with the Institute of Transport Economics, working to promote greater confidence and reduced perceptions of insecurity in parallel with greater vibrancy and social connection, within particular neighbourhood areas of Oslo. Second, we consider whether such approaches help to *stimulate,* or *generate* design, in the sense that Dorst et al. (2016) set out, rather than merely *document* done designs, as Lulham et al. (2012) argue has been a challenge of such framework approaches. Third, we discuss which CPTED principles this combined-driver approach may embody, or challenge. Lastly we consider whether this 'vibrant-secure' or 'social-safer' framework could support 'third generation' progressive takes on CPTED (Thorpe and Gamman 2013; Saville 2013; UNICRI and MIT 2011; Ekblom 2010), or whether such approaches are better left to their own devices, outside the concerns and complexities associated with the CPTED movement.

Introduction

This chapter tells a story of a clash, engendering something new. The collision is one of ideas, principles and in-practice experiences. The novelty resides in the emergence of an approach informing both on-street *designs* and design *resources*. Specifically, we mean the Vibrant Secure Function Framework (VSFF), first piloted in Oslo 2016, aimed at simultaneously confronting urban challenges and stimulating urban living. It emerged from a tension between issues of environmental security, place-making, consequent perceptions of place, and community safety, and resulting changes in urban behaviours.

Crime Prevention Through Environmental Design (CPTED) "…the design, manipulation and management of the built environment to reduce crime and the fear of crime and to enhance sustainability through the process and application

of measures at the micro (individual building/structure) and macro (neighbourhood) level." (Armitage 2013:23).20

Steadfast practitioners of CPTED, usually police with architectural/preventive experience, may already be thinking "our approach operates well in such scenarios, what more can we learn here?". But the question is less whether CPTED *works* and more about the *structuring frames* through which it can be introduced, realised and reflected upon; and how these help juxtapose CPTED perspectives with other, competing or conflicting demands in designing for changing urban contexts.

The principles now known as first, second and third generation CPTED (briefly described below) are diverse in how they address the challenges of urban life, and in the forms of application and critique they have stimulated over three decades. Applications of CPTED invariably centre on responses to crime. "Of course!" we all cry, "isn't that the point?" Well, this chapter reflects on a case in Norway, which we hope is a reminder that the lived experiences – of both occupants and visitors (users) engaging with public built environments, and of the diverse service-providers facilitating them – do not normally place crime concerns centre-stage. Possibly the opposite! Indeed, the most successful examples of CPTED may be those which are never noticed for their preventative qualities. Whilst the goal of reducing crime and its harmful consequences in existing or planned built environments is certainly important, this is rarely the primary ambition of stakeholders and dutyholders.[1] This should spur us to strive to find security-relevant approaches which better embrace the many other goals of everyday life in urban contexts.

Whilst evolving iterations of CPTED have sought to include community and social considerations as an addendum to CPTED's primary concerns of crime prevention (Atlas 2008; and the 'second generation' approach of Saville and Cleveland1999), only some 'third generation' approaches to CPTED have specifically begun to explore how positive, pro-social 'opportunities' can be considered with at least equal weighting to the mitigation of crime 'risks' in built environments. But this exploration is challenging, as our experience attests. We do not claim to have all the answers, but we do hope to share what we have learned during the combined application of design and criminological innovation efforts, through a case study in Oslo. We should declare now that, while conventional CPTED principles of surveillance, territoriality etc. significantly informed our thinking, we were not following these strictly. Rather, we adopted a more generic design-based approach to security that also incorporated situational crime prevention (SCP: e.g. Clarke 2017) – changing the environment to decrease opportunities and provocations for offenders – and the broader perspective of crime science[2] . This in turn was embedded within 'design ways of thinking' (Cross 2011 and DACRC 2017).

The following account depicts the setting and explains why we needed to develop our own framework to bring contesting demands into balance.

Emergence of the Vibrant Secure Function Framework

The Design Against Crime Research Centre (DACRC) in London was invited to collaborate with the Norwegian Transport Economics Institute (TØI), who were seeking how best to re-activate an entire district neighbouring Oslo city centre.

The project title – Trygghetsskapende tiltak for levende byrom – loosely translates as 'confidence-building measures for a vibrant city' - (henceforth, 'the Oslo Project'.). This brief and new framework approach emerged in response to a number of studies undertaken among Oslo citizens, plus consequent reports and city-level plans produced in Oslo, highlighting concerns over particular issues and areas of town. In particular, the CityLife survey (Bylivsundersøkelse) undertaken by Gehl (2014), identified that lack of confidence in certain areas, had been acting as a barrier to achieving the broad Oslo municipality ambition to achieve "more activity and increased city life in the city centre" (2014:3). The City required an integrated response to help boost opportunity, not just reduce challenges. This demanded a more holistic method than a security-only focus offered.

The project team had been charged firstly with developing new 'confidence-building' measures that would work in the central but peninsular neighbourhood of Kvadraturen (Figure 11.1). Secondly, they were to establish context-appropriate methods to evaluate the effects of the measures introduced, upon perceived security. The plan was to explore these two distinct challenges through a set of designed environmental interventions and actions (collectively, 'measures'). These included designs for street furniture, lighting, vegetation, counter-terrorism and social attractions. Our account focuses on the well-developed *street furniture* strand of activity; at the time of writing, the others are in earlier stages.

Figure 11.1 Map of Kvadraturen District, Oslo

Credit: Gehl / DACRC

Willcocks and Ekblom from the DACRC team jointly undertook this activity in close collaboration with TØI as the project lead and other partners including various Oslo City Council departments and street furniture manufacturer, Norfax. Ekblom had been asked to apply, in this project, aspects of his Security Function Framework (SFF: Ekblom 2012). This had been initially developed, in the cross-disciplinary domain where design meets crime science, as a formalised way to describe, and specify, the security functionality of any designed product. Early examples centred on small products like table clips to prevent bag theft in bars (Ekblom et al. 2012); subsequent applications included the specification of explosion-resistant rail carriages (Meyer and Ekblom 2011) and the security of the Government Quarter in Oslo (Meyer et al. 2015). In turn, Willcocks would apply the socially responsive design innovation (SRDI) thinking and expertise the DACRC team had developed through recent delivery of work on topics including public seating and space but also, personal safety, bicycle security, graffiti and urban participation (e.g. Willcocks and Toylan 2016; Ekblom, et al. 2012; Thorpe et al. 2010). In this, we were joined by SRDI originator Adam Thorpe. The key elements of SFF are in Box 11.1; those of SRDI in Box 11.2 and Figure 11.2.

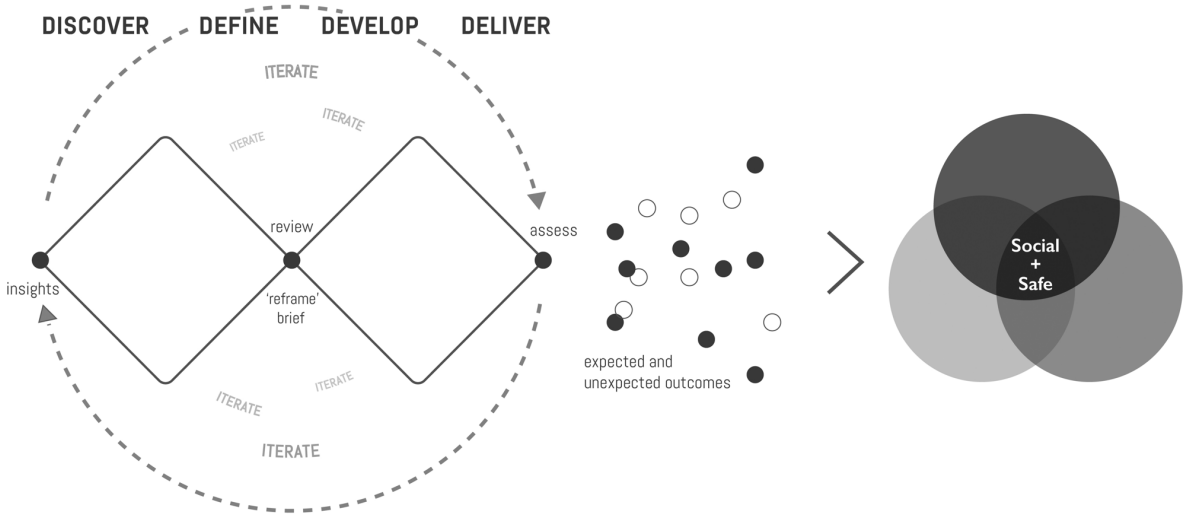
Box 11.1 Security Function Framework

This aims to specify or describe security-related aspects of designs of products or places. SFF comprises four aspects:

- **Purpose** – what is the designed item for, and for whose benefit? This covers primary and subsidiary purposes, 'desire' purposes (properties that are not strictly necessary, but desirable, e.g. conveying stylishness) and 'hygiene' purposes (properties to avoid, e.g. inconvenience)
- **Niche** – how does the item fit within the security ecosystem? Is it an inherently secure product (e.g. difficult to damage), secured product (kept in a secure environment), securing product (security purpose is subsidiary, e.g. a seat which also protects bags from theft) or security product (main purpose is to secure another item, e.g. 'Krooklok' for protecting cars against theft)?
- **Mechanism** – how does the item work? Causal mechanisms such as deterrence (increases perceived risk to perpetrators) or defeat (physically blocks the crime).
- **Technicality** – how is the item constructed, installed, operated?

Box 11.2 Socially Responsive Design Innovation

Socially responsive design is defined by Thorpe and Gamman as 'Design which takes as its primary driver, social issues, its main consideration social impact and its main objective social change' (Gamman and Thorpe 2011). Typically, societal scenarios constitute complex and 'wicked' design challenges, characterised by competing and contradictory drivers and desirable outcomes, depending on stakeholder perspective. The SRDI team at UAL argue that tackling such design challenges requires a socially responsive design approach, in a more targeted and more agile sense than simply trying to be 'socially responsible'. The diagram in Figure 11.1 extends the UK Design Council's Double Diamond process http://www.designcouncil.org.uk/news-opinion/design-process-what-double-diamond.



DOUBLE DIAMOND DESIGN PROCESS

As used by the Design Against Crime Research Centre and Socially Responsive Design Innovation hub, University of the Arts London.

Figure 11.2 Double Diamond Design Process

Our first visit to the neighbourhood of Kvadraturen was illuminating. Knowing this project addressed concerns of anti-social behaviour, drug use and rough sleeping, we had expected a deteriorating, dirty or downright ugly neighbourhood. Instead we encountered a surprisingly pleasant place, hosting a mix of historic, characterful and more recent buildings among distinctly human-scale environs, with a waterfront and pedestrianised areas interspersed with cultural venues, independent stores and residences. Relative to London, it felt calm, hospitable and clean. But that first impression, informed by our own cultural baggage, helped us see that maybe we had missed the point. Our task was not to compare this to a cosmopolitan city of ten million people. It was to

understand the setting as it was, and how it made sense to those who live and work in Oslo and visit there.

As we curbed our assumptions and listened to colleagues in Oslo, we learned about Kvadraturen's rich and colourful history. It appeared appropriate for this project, because it had been struggling to shed a reputation among Oslo residents and visitors as unsafe, seedy, or unfashionable. This was limiting the scope of new activities, legitimate uses and social/economic opportunity in this prime city location. The Oslo Municipality were also pursuing a wider agenda to revitalise the Kvadraturen area for living, for commerce and for outdoor activities, within the delivery of their city plan 'Towards 2030 – Smart, Secure and Green'[3]. Unsurprisingly, they were keen to tackle obstacles to this vision.

We joined an initial working session – with representatives from the municipality, transport authority, streets, environment and cultural heritage departments, plus other local experts and academic collaborators – to hear there had indeed been issues in certain streets with drug use and prostitution, but that actual crime incidents had seemingly reduced. We also heard reports of 'antisocial' goings-on, such as addicts using public seating when heating their spoons, and foreigners sleeping rough. However, the real challenge seemed as much about transforming the perceived image of Kvadraturen as a 'place' and a 'destination', as about changing the reported crime figures. Hence the initial brief sought to develop a better basis for implementing 'reassurance-measures' in the city, to influence both objective and *perceived* security.

Here lay the roots of the collisions ahead. The initiative was born of insights and know-how from crime science, urban logistics[4] and broader research-led thinking but it needed to invoke the dark art of 'image' to achieve the desired security impact. Previous principles and processes of designing against crime, including approaches of CPTED and Situational Crime Prevention (SCP: e.g. Clarke 2017) had predominantly been tested against tangible and material crime metrics. Initially, these looked towards designed measures to generate ultimate outcomes of reduced crime incidents of, say, burglary, robbery, or theft from the person. Subsequently, a design's capacity to stimulate *intermediate* outcomes through behavioural change has engendered important indicators, too, such as improved bag care among bar users, or improved locking practice among cyclists (e.g. Thorpe and Gamman 2011, 225-6).[5] Likewise, the SFF had previously been developed with a strong focus on crime prevention. In contrast, as noted by Vitiello and Willcocks (2006), perceptions of a place and the character it may project closely relate to adjectives like 'charming', 'welcoming' or 'alienating' but such emotive responses jar with crime reports.

This, then, was a project facing multiple but competing agendas and desirable outcomes: a scenario which in SRD terms are 'wicked' challenges (Gamman and Thorpe 2012; Churchman 1967). The activity here jolted crime prevention frameworks abruptly against demands of place-making, with its multiple agendas from tourism, planning, transport, housing, business, culture, heritage and health.

The *Oslo Towards 2030 Plan* stipulated that the city "should be experienced as safe to walk in public space day and night", and that its citizens "should have access to attractive, diverse, and easy-to-use city space." We quickly realised that the Kvadraturen neighbourhood was *not* so regarded by most locals. The

spatial make-up of the vicinity comprises a square kilometre of grid-pattern streets (the name translates into English as ‘quadrature’), with narrow pavements, mostly in the shadow of medium-rise buildings and limited space for public furniture or similar amenities. At the time of the project, the neighbourhood itself hosted about 25,000 people per day working in the area but only 6,000 residents. We heard descriptions of the area as “a no-man’s land”, “a bit destitute”, with a “very low footfall”. Such assertions were verified by the Oslo CityLife survey (2014), who reported a “lack of urban life in the area”. A 12-point indicator for ‘urban quality’ was used in the CityLife survey, which revealed Kvadraturen was among the lowest scoring areas in Oslo (see Figure 11.3). The survey asserted that, in the wake of the tragic 2011 Breivik bombing – some of the subsequent security measures introduced to the area may have contributed to changed activities and perceptions, uses and behaviours, quite separately from the prior concerns over anti-social behaviour. “*These measures have often both a psychological and an actual effect on city life in terms of the place perceived as impassable or unsafe”. (Gehl 2014:100*).

To summarise, on the one hand, new measures were being explored to address a sense of insecurity, seen as significantly inhibiting positive activity in the neighbourhood, whilst statistically, area safety had actually increased. Elsewhere, recent counterterrorism measures themselves were considered part of the problem. Different city actors, each wanting better for the area, were variously looking towards attracting new publics, enabling better transport, more sustainable lifestyles, more commercial opportunity, more healthy activities among the shared streets and spaces, a more liveable neighbourhood: more vibrancy.

The brief

Exercising critical detachment, we pondered: ‘How could this project possibly hope to attract more people to-and-through the area *and* create a greater sense of security by installing some street furniture? Whoever would cross town just to see a bench? Why would that make anyone feel even slightly safer?’

We reviewed early materials informing the project and our initial understanding. The project team knew that security and insecurity in public spaces closely relate to the presence of other people (Backer-Grondahl, Amundsen, Fyhri, and Ulleberg 2007). This is why discussions were also gravitating towards the ‘regenerative relationship’ between the number of people and experienced security, and why project colleagues were also looking towards less-physical measures (the ‘Social Attractions’ strand, covered elsewhere) to further inspire positive activity and perceived security. The project’s briefing note, prepared by Sunniva Meyer, the TØI lead on the initiative (Meyer 2014), set out a premise of the project thus: “*a vibrant urban environment requires that people use public spaces, whether they are traveling from A to B or staying there for a long time. A prerequisite for people to choose to use the public space is that they feel safe and comfortable (Gemzøe 2006). Traditionally, the police have been responsible for safety and crime prevention, but lack of capacity means that other authorities, private institutions and individuals, such as planners, architects, developers and owners of public spaces, must also now help to create safe urban spaces”.* The note also recognised however, that *“from such knowledge [as Backer-*

Grondahl et al. 2007] it is not unreasonable to think that one can create greater confidence simply through attracting more people to a given locality. This turns out to be difficult to achieve. Firstly, there are in any city geographical areas which compete to attract the same people. Moreover, it is often a challenge to target an activity to attract certain types of people, whilst also providing security for others. Finally, it is a challenge to create an effect beyond the organised activity in time and space." This reminded us of other complex urban security challenges. Indeed, terms like 'fortress design' and 'hostile architecture' have emerged from a worldwide catalogue of struggles to balance competing demands in shared urban contexts (e.g. Quinn 2014; Gamman and Pascoe 2004). These phrases reflect that alongside design's capacity to attract, deliberately or otherwise it is equally possible to turn publics away through designed interventions.

Despite good intentions among expert theorists and practitioners, CPTED and SCP, sadly, have rarely fallen comfortably into place among precedents of place-making and human-centred urbanism (which at times focus on the positive, without being specific on mitigation of crime challenges). Urban vitality and perceptions of security are not synonyms; nor could we assume that either would automatically engender the other. For example, in describing his second-generation approach to SafeGrowth, Saville explains that: "CPTED lighting might be applied to risky locations and security patrols might be added to parking lots. But these efforts do not necessarily eliminate residents' fears of night time crime. If residents are disinclined to participate in social activities, they stay indoors. Situational prevention and urban design tactics alone are unlikely to instigate sustainable and safe neighbourhoods." (2009: 389) He goes on to say that this approach omits community engagement, a deep understanding of context and inclusion of local priorities.

Reframing the brief

We therefore judged we should embrace demands to address the realities and the perceptions of crime and anti-social behaviour, simultaneously with facilitating or 'affording' (Norman 1999) easier concurrences of pro-social activities in the neighbourhood. We needed to approach this not just helping reduce what was wanted *less* of – crime and safety concerns – but equally understanding and promoting what was wanted *more* of – neighbourhood vibrancy, local confidence and on-street activity within and relevant to Kvadraturen.

We knew the SRDI approach of more-of *and* less-of had worked for the DACRC team elsewhere. Thorpe and Gamman highlight that this this kind of twin-track thinking can both help "reduce fortress aesthetics and avoid 'vulnerability-led responses' that promote 'defensibility' in the public realm over permeable spaces and 'open' community values". In contrast, they report that designing only for less-of (to reduce crime) can bring unintended consequences. "Designing out public conveniences, seating and litterbins may prevent some types of vandalism or crime, but these first-generation CPTED approaches may [become] punitive to the law-abiding majority*"* (2013: 210). Although first-generation CPTED includes the principle of 'activity support', i.e. boosting legitimate activity, this is both confined to a security rationale, and vaguely defined, to boot.

We also knew that earlier iterations of the SFF had already proved useful for capturing the rationale and functionality offered by diverse designs (objects, services, places) in resisting particular crime challenges. It illustrated how designing (against crime) could deliver the less-of in a given situation. In the Kvadraturen project however, we had to adapt SFF to combine measures to see *less* fear of crime ('reassurance'), with measures to see *more* conviviality. This demanded a frame which could fuse more-of *and* less-of in as systematic and rigorous a way as the original, crime-focused SFF attempted. In this, we judged that the more abstract dimensions of SFF (purposes, mechanisms etc.) offered a better basis for a merger than the content-focused principles of CPTED (surveillance, territorial reinforcement etc). We should emphasise, however, that these principles, and those of conventional SCP, continued to inform the ideas for realising the brief.

Thus far the pro-social aspects, including those of *perceived security*, had not been previously documented or developed through the SFF. Now we had the chance, from the clash of these more-of and less-of frames, to develop a combined resource to serve not just the *retrospective documentation* of the crime preventive aspect of the design activity, but also the *prospective briefing* of both crime preventive *and* conviviality/vibrancy-enhancing aspects. The latter, if it worked, would counter the view of Lulham et al. (2012) that SFF could describe designs but not help generate them, and instead, support the position of Dorst et al. (2016) and Asquith et al, so as to 'reframe' crime problems, "drawing upon 'design thinking' to deliver integrated solutions that recognise CPTED outcomes without being 'CPTED-led'" (2013: 171).

The scoping we undertook in-context and remotely, helped identify contextual characteristics in terms of key actors, agendas, assets and activities, and opportunities. These would later inform the design and evaluation processes. The 2014 'Oslo CityLife' report and the 2009 "Kvadraturen Action Plan … to 2024", both corroborated that the project neighbourhood had safety concerns. In turn, these perceptions may have limited the social wellbeing of the area besides deterring those prospective new visitors and residents, whom city plans sought. The scenario here is helpfully reflected by Wolfe's reporting on crime and public safety for the University of Washington's Green Cities: Good Health program:

"Perceptions often influence behavior and cause people to avoid places they associate with personal risk. Impressions of crime likelihood (irrespective of actual crime rates) can lead people to choose to not enter public spaces, to retreat within their homes, and cease on-street socializing [...]

> Neighbors who have strong social ties form more effective social groups, and become more capable of building consensus on values and norms, monitoring behavior, intervening if problem behaviors occur, and defending their neighborhoods against an increase in crime. Perhaps residents who know and trust each other are more effective in instituting local social control over what goes on in the spaces outside their homes." (Wolfe 2010)

Wolfe's attention to social ties is significant for the role of design. Robust evidence from criminologist Sampson (2012) and colleagues, plus accounts from urbanist Montgomery (2013) for example, suggest that safer and more vibrant neighbourhoods (in their terms, 'enduring' and 'happy' places) can only happen with sufficient opportunities for social connection, social-ties and increased

degrees of ‘collective efficacy’. We can understand then that designed ‘measures’ to improve feelings of security about a place must consider people’s capacity both to perceive *and* promote connectedness (e.g. Morenoff, Sampson and Raudenbush 2001). Consequently, the best chance for street furniture to impact positively on perceived safety could be through focusing its purposes towards promoting social connections and strengthening ties[6] between both people and place. Indeed, Gamman and Thorpe (2016) identify that this ability of a design process “to reframe anti-social problems as opportunities for pro-social intervention is important in the context of socially responsive design because of the “wicked” […] nature of many social challenges.” (322). They cite Dorst (2015) in valorising the act of reframing problems as opportunities, as vital to ensure the “engagement of the multiplicity of actors necessary to impact upon these complex networked problems” and to “accommodate the [actors involved] in pro-social ways, rather than regarding and responding to them only through an anti-social/policing lens.” (ibid)

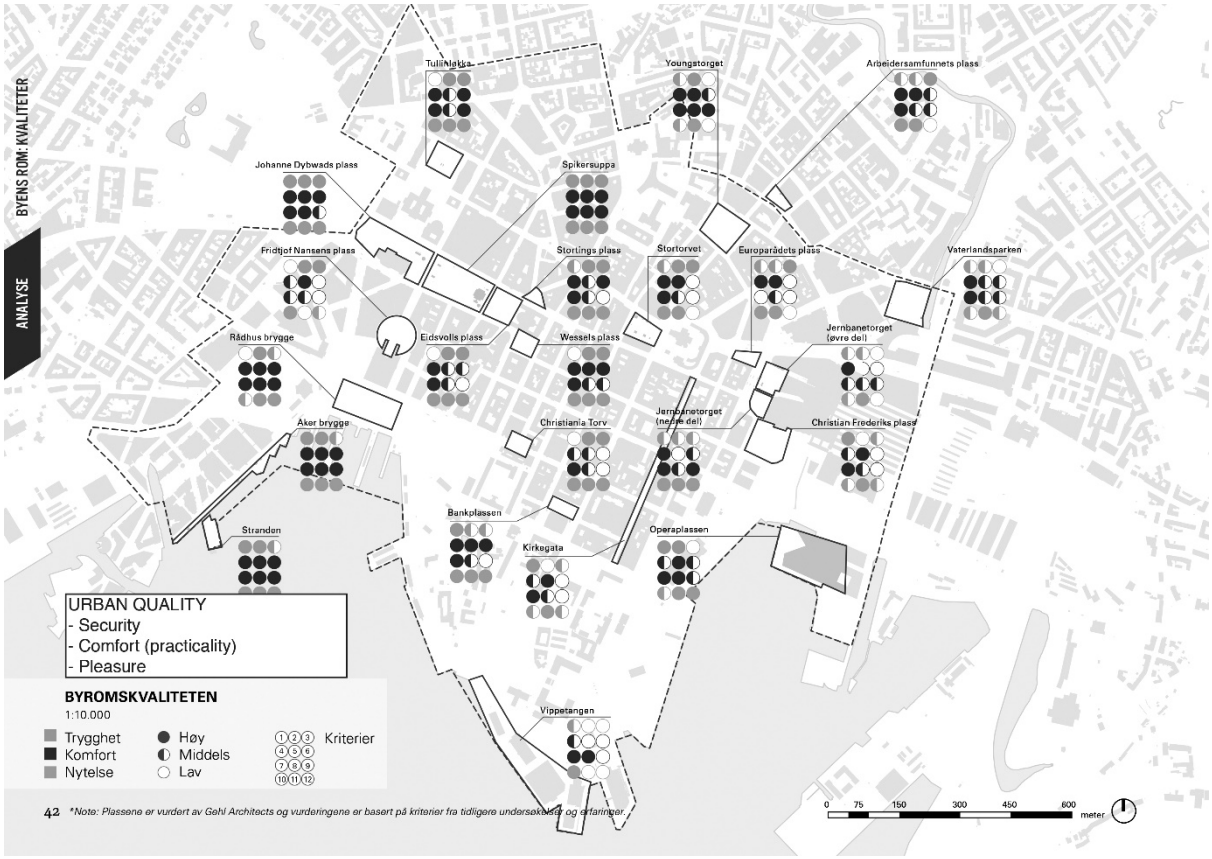


Figure 11.3. 12-point ‘Urban Quality’ review in Kvadraturen, reporting on aspects of Security, Comfort (practicality) and Pleasure. (Gehl 2014:42)

Credit: Gehl

In Oslo then, the task as initially defined was to explore how street furniture designs could best support wider ambitions. Particularly to enable people to more comfortably and legitimately dwell in *places* on-street and among other *people*, including some less familiar to themselves. With Kvadraturen wider ambitions meant complementing broad pro-social visions to promote local public life, culture and recreation, attract new residents and capitalise on the area’s history, trades, arts, diversity and waterfront proximity. In serving these wider

aims however, the focus continued to be developing less-of ‘fear-reducing measures’.

Through workshops with diverse stakeholders and the project team at TØI, the brief was revised. This reoriented the task from mainly fear-reducing measures to instead “*develop street furniture design responses which help foster vibrancy, a greater sense of security, and greater social connections in Kvadraturen*”, whilst acknowledging the diverse and sometimes contending agendas around this. Figure 11.4 shows the reframed brief, having shifted from a security emphasis to combined security and vibrancy. From here we could start to unpack how this might look in design development and relative to the extended SFF.

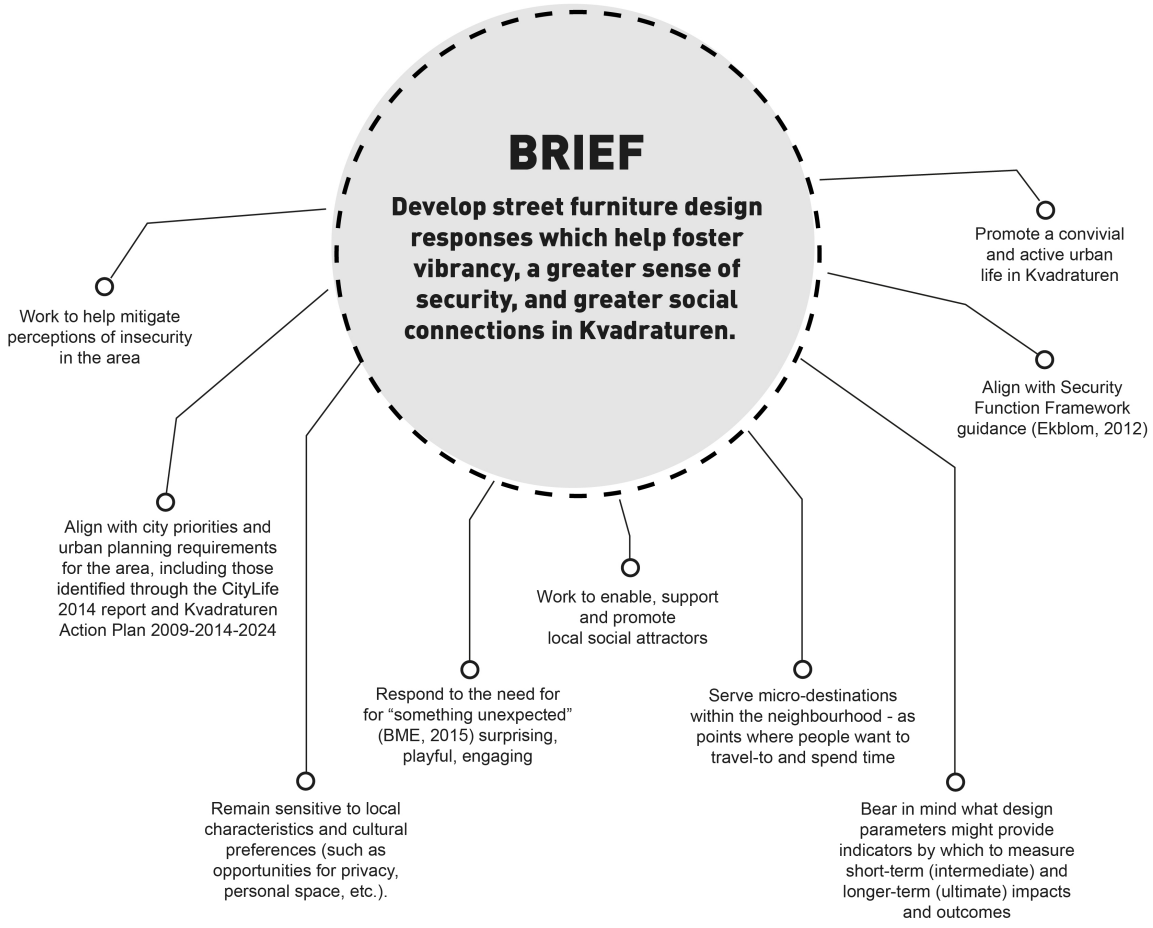


Figure 11.4 Reframed brief

Stimulating innovation or reflecting on design?

Previously the SFF (Ekblom 2012, Ekblom et al. 2012a) had mainly been applied retrospectively to existing projects as a consistent way of capturing and sharing knowledge gained through processes of designing against crime. (The exception was an application to a prospective specification for an explosion-resistant rail carriage (Meyer and Ekblom 2011), though this was acknowledged to be a limited ‘bench-test’ of the approach rather than a real-world design exercise.) This time however, we wanted to know if it would work as a fully prospective tool,

and to extend its scope from one centring on crime to addressing competing demands between crime prevention and place-making, besides supporting more specific opportunities for tourism, public transport, culture, heritage, local living and local enterprise. In fairness, the original SFF had covered such considerations but only as 'desire' requirements peripheral to security. To fully respond to the brief above we evolved a new structure to manage and exploit the aforementioned clash between SFF and SRDI approaches.

From SFF to VSFF

The framework development process worked thus. Under each SFF level – purposes, niche, mechanisms and technicality – the functions to be described regarding design's role in controlling or mitigating crime, antisocial activity, or fear of crime concerns were first framed, conventionally, under what was wanted less-of. This conventional version would put crime/security centre stage and confine requirements reflecting other values to the periphery, e.g. under subsidiary 'hygiene' or 'desire' purposes. But we then set out a *parallel* frame for each level covering what was wanted more-of. This was to treat with equivalent priority, and bring into the same thinking-space, the pro-social ambition to which the design should contribute. Only when, as here, all requirements are considered *simultaneously,* can the design process best resolve conflicts and generate innovative and practicable solutions. 'Bolt-on' security afterthoughts tend to be constrained in scope, inefficient, user-unfriendly, ugly and perhaps short-lived (Pease 2001; Ekblom 2014). Attempts to embed CPTED-type considerations into the planning/design/development process have revealed related obstacles (Monchuk and Clancey 2013) to getting fair and timely hearings for security requirements.

As Box 11.1 describes, working through the original Security Function Framework, starting with Purposes, would normally accord a prominent position to crime and security, if not necessarily *the* top priority (for example, the 'Stop Thief Chair' (Ekblom 2012) is an item 1) for sitting on which also 2) looks good and 3) protects bags). Lower down would come material 'desire' requirements such as resilience to wear and 'hygiene' requirements such as not trapping fingers.

Although crime and insecurity, and their consequences including fear and avoidance, were salient in the original Kvadraturen project proposals, it was always recognised that more positive issues were at stake. Our initial attempt to apply SFF led us to identify the principal purpose of street furniture as 'to increase the amount of time people spend/hang out in the area'. The furniture, specifically seating, would thus occupy a 'securing' niche and boost the mechanisms of 'natural surveillance' and/or 'guardianship' in traditional CPTED terms. But the furniture could also be viewed as a means to a more strategic end, namely "to afford diverse activities which allow people to feel welcomed and involved in the neighbourhood". Underlying this rationale was the knowledge from research and practice that, whilst provision of seating per se would scarcely draw people across town simply to sit, strengthening of ties by boosting opportunities for social connection within the built environment can encourage such decisions.

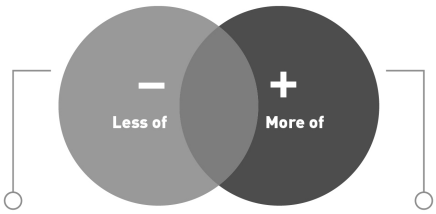
It became evident that while security remained an important requirement for the furniture and the neighbourhood, and had featured prominently in the original project discussions, the wider strategic context squeezed it into a corner of the design considerations. Likewise, the stakeholders and dutyholders with an interest in the neighbourhood, its street furniture and other elements (such as vegetation) were extremely diverse. All this heavily strained our initial, predominantly less-of framework.

We therefore decided to reconfigure the SFF to enable a balanced representation of the more-of and less-of demands. After multiple iterations – involving tests and feedback among project colleagues and project networks – we formed the **Vibrant Secure Function Framework tool** (VSFF), as we now call it. The application of this is set out below, through Figures 11.5-11.9. These give an initial overview (Figure11.5) and then unpack the top-level framework headers to describe the design's Purpose, Niche, Mechanism and Technical functions, respectively. Presenting this diagrammatically reflects more closely how the framework was deployed in practice, namely to systematically require the fields to be considered and addressed, and showing the more-of and less-of perspectives for each frame in parallel, rather than in sequence. The diagrams themselves provide the narrative.

Figures 115-11-9 Application of VSFF tool

Mechanism examples

More than one can work in parallel



How does the design work in preventing crime and increasing community safety?

Mechanism principles:

By boosting the presence and confidence of informal crime preventers, manifested as street users willing, confident and able to undertake informal surveillance and informal social control. Consequently also preventing crime by increasing perceived and objective risk to offenders.

By activity support – CPTED principle/mechanism of promoting adequate variety and balance of legitimate activities in order to reduce opportunities for illegitimate activity (e.g. by exclusion or deterrence).

By generating improved perception of safety/security around Kvadraturen area, by objective reduction in crime and disorder; by reducing signs indicative of crime and disorder (e.g. litter); by increasing presence of friendly, positively active street users who might deter, or respond to, criminal and disorderly behavior.

Notes:
The Environmental Criminology concepts of crime attractors, generators, enablers, detractors and radiators are also relevant and need to be developed in the present context.

The CPTED principle of Activity Support further envisages neutral (legitimate) or prosocial activities reducing opportunities for bad ones, mechanism varies.

How does the design work in promoting pro-social activity?

Mechanism principles:

Area-focussed mechanisms

By promoting urban vibrancy and social sense of connection by attracting more legitimate activity and promoting social ties and local connections.

By making the area more pleasant to visit/stay in, supporting micro-destinations with the neighbourhood, as points where people want to travel-to and spend time.

People-focussed mechanisms

By encouraging people to connect with the area, with other people and stay longer, for example, by:
(a) encouraging them sit down
(b) encouraging them do some pro-social activity
(c) allowing them to experience something positively different, enjoyable or surprising.
(d) encouraging them stop and look at the street furniture (or someone doing an activity on the street furniture)
(e) making them interact in a positive way
(f) others …

Activity-focussed mechanisms

By working as part of a system or scheme, where people are invited to input ideas or feedback, thereby helping make the area still more attractive to them and boosting sense of ownership.

By promoting participatory involvements, through its design or associated opportunities which it serves

By hosting other social opportunities.

By being artistic or interactive.

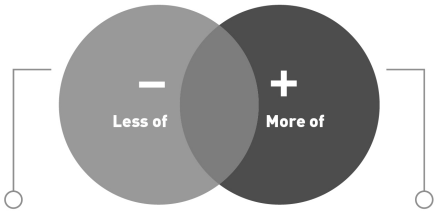
By being playful.

By inviting local artists, designers to initiate a rolling programme of style developments, to keep a simple design varied and interesting.

By serving specific temporary uses (e.g. markets, community events, performance stages, sports activities, neighbourhood meals, local festivals, etc.).

Niche

How does the street furniture play a role in relation to other relevant systems, services, people, products and places, in its intended environment?



How does the street furniture design fit within the ecology of security?

The **locality as a whole** is an environment that is **secure** against damage to itself (vandalism, theft of materials etc.) and **securing** i.e. it protects the people and property that reside in, work in, visit or pass through it.

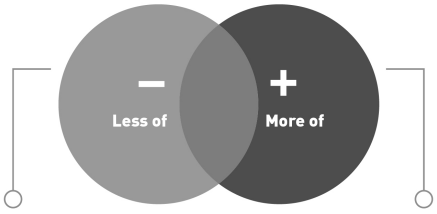
The street furniture as an **individual component of the locality** is a **securing** design, e.g. something to sit on that also contributes to the **security** of the immediate users and/or the wider environment. This relates to the 'comfort' concept in the 2014 Oslo CityLife report. Street furniture must also in itself be secured against mistreatment, misbehavior, misuse or even misappropriation (theft). In both roles the furniture could be **inherently** securing/secure e.g. by robust construction, or could rely on hosting specific **security features** such as noise sensors, damage alarms, anti-graffiti coating etc, protecting users/environment or the furniture itself.

How does the design fit within the ecology of a vibrant city?

The **locality as a whole** is an environment that **inherently** attracts people to it to undertake pleasurable legitimate activities, and is acceptable as a place to work, reside and pass through.

The street furniture as an **individual component of the locality** enables, supports and promotes local **social attractors,**[5] and **supports micro-destinations** within the neighbourhood, as points where people want to travel-to and spend time; and that may become **attractions/destinations in themselves.**

Purposes in more detail



What antisocial activity does the design address?

Reduce perceived insecurities: Need for greater sense of security in some Oslo neighbourhoods – particularly around Kvadraturen and related areas.

The subsidiary crime related purposes of this street furniture are to:

- Reduce feelings of insecurity in and about the area.
- Reduce behaviours that contribute to feelings of insecurity, e.g. littering, soiling, tagging, drink and drug related misuse, rough-sleeping

What positive social activity does the design address?

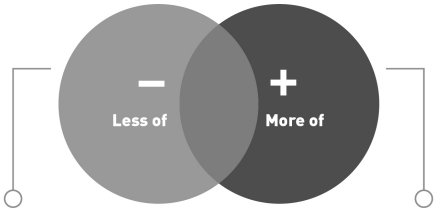
Need for more vibrancy in Oslo city – particularly around Kvadraturen and related areas.

The subsidiary positive (pro-social) purposes of the street furniture are to:

- Support possibilities for social connections and greater sense of belonging locally, in regard to both place and people.
- Enable to feel more comfortable, confident and secure about using that part of the city.
- Promote greater footfall within and around the area
  Encourage people to stay longer in the area(s) where the street furniture is deployed.

Brief	Develop street furniture design responses which help foster vibrancy, a greater sense of security, and greater social connections in Kvadraturen.
Principal Purposes (of the street furniture, in terms of strategy and service)	Help **reduce perceived insecurities** around neighbourhoods such as Kvadraturen Help **boost vibrancy** around neighbourhoods such as Kvadraturen Support **social connections with both place and people,** in the study/intervention area(s).
Desired qualities (What else would make the street furniture attractive to stakeholders/ dutyholders?)	The street furniture should also have some desired qualities, to: Attractive in both appearance and experience / system of use Minimise operating costs Be movable (with machinery but not by human force alone Remain sensitive to local characteristics and cultural preferences (such as opportunities for privacy, personal space, etc.). Emotional connections with place and people – through for example **"something unexpected"**[4] ; and/or playful; interactive (physical or virtual); or otherwise pleasantly surprising elements and experiences that enable people to build distinct associations with places.
Required qualities	The street furniture should meet some 'hygiene' or social responsibility requirements by being: Environmentally friendly in construction and maintenance Socially inclusive Safe against accidents Avoid becoming inadvertent crime attractors in themselves Align with city priorities and urban planning requirements for the area, including those identified through the CityLife 2014 report and Kvadraturen Action Plan 2009-2014-2024.

Technical



How is the product realised so as to support the preventive mechanisms?

Presence and promotion of multiple opportunities for pro-social behaviour the benches will help diminish criminal motivations or deny offenders some opportunities to commit crime (Ekblom, 2013b).

Maintenance, Management, Target Hardening and Access Control
eBenk construction deploys a purposely small pallette of hard wearing and locally accessible materials and serviceable technologies. This is intended to promote robust product longevity, resistance to damage and wear and to enable straightforward ongoing maintenance and servicing, involving basic facilities and skills already in place among existing Oslo street management teams.

Principle exposed materials - those in contact with eBenk users weather elements - are (i) cut timber sections (each 90mm thick, with 35mm spacing) of dense Norwegian spruce (a local, strong and straight-grained softwood); (ii) galvanised steel (approx 5mm) casing for central structural service box, housing internal connections; (iii) solid polycarbonate cylinders (approx. 100mm x 1000mm) for the lighting.

Each of the principle materials were untreated during the Oslo pilots, partly to control costs and environmental impact, and partly since these materials are to some extent self-cleaning. In other contexts, painting, or wax/oil-sealing of the seat timbers may be recommended.

Access to the central service box (covering internal controls, connections and fuses) is secured by an inconspicous galvanised plate, with tamper-resistant screws which are hidden from view and easy access.

Compared to traditional straight benches, the eBenk reduces chances for littering and lack of care behind the bench, owing to its multi-directional form.

The weight of the eBenk means it can not be moved without a lifting aid, such as a service-vehicle-mounted crane, or pulley.

Defensible Space, Surveillance and Territorial Reinforcement
The rounded form of the eBenk, combined with the ergonomics of its key dimensions, mean unfamiliar occupants can sit near each other without having to feel like their personal defensible space is threatened.

Multi-directional sitting options boost chances for natural surveillance from the bench over the immediate environment.

Two ambient lights serve for users to see and be seen in the immediate area.

How is the product realised so as to promote the pro-social mechanisms?

Opportunity and Activity Support
The eBenk's material and activity-related resilience is intended as a form of welcome, for people to engage with the product and the surrounding ara, rather than as a form of exclusion.

The eBenk is designed to act as an important place-level contributor as described by Project for Public Space's recommendations to establish 10+ things to do and reasons to be in a given location, at respective urban scales of region, destination and place

The specific activity functions supported include sitting - to rest, take a break or eat a snack, to meet friends or colleagues, to read, check messages, and more - but importantly also, at a micro-local level the eBenk acts as a node for wider social encounters, through provision of lighting, charging points, wifi (password written on the bench) and helps afford some wayfinding in the local area.

At a 'meso' level, the bench has an impact on the wider local area in promoting new reasons for increased ranges of legitimate users to travel to and stop within areas where the eBenk is located.

The benche's strong aesthetic form, the lighting, its projected and locally communicated image (online and in press) and it's consequent public perceptions and awareness, combine to enable the design to establish itself as a micro- landmark and to effect a localised sense of place for pro-social activities.

Defensible Space, Surveillance and Territorial Reinforcement
Outward-facing circular form and 1800mm diameter mean that bench users are permitted their own angle of comfortable space on the bench. This enables different users to sit in closer proximity without feeling awkward, invasive or invaded - so more of the bench can remain usable and afford greater social activity at any one time.

Promotes a greater sense of place with more distinctive design and support for greater range of legitimate activities described.

Aesthetically bold on-street presence goes some way to marking out and communicating a local zone for collective activity, in the immediate vicinity where it is located.

Lighting in the centre of the bench acts as hyper-local landmark.

Sustainability
Social sustainability promoted via amplified range of social features and functions (multiple sitting positions, wifi, lighting, charging, micro-landmark, etc.) to attract wider range of users.

Environmental sustainability promoted through robust construction, with locally sourced, predominantly recyclable, and straightforwardly maintainable materials and components.

Economic sustainability promoted through product durability and low-maintenance requirement, in addition to boosted local activity the product may help promote and opportunity to recover fee from street traders, who connect to the eBenk power supply.

In the present project, these frames served both to brief the design in detail, and to capture the design activity which subsequently unfolded. The brief centres on Purpose and Niche, hence offering maximum design freedom. This is then developed through Mechanism and finally realised through Technical specification and implementation. The technicality is the nuts-and-bolts aspect of

the design. The example of explosion-resistant rail car, mentioned above, stopped at mechanism, delivering a design specification, whereas the fact the street furniture design in Oslo was realised and installed in context meant the framework could be used leading up to and during the design development, as well as in reflection on the implemented measure. The function framework is not however meant as a linear process: rather, it provides a structured platform through which the design process can be worked out and portrayed. In the case of the SFF and VSFF, both essentially act as *levels* of design. As reflected in Figure 11.10, these levels, each embracing anti-social and pro-social considerations, help systematise and describe iterations of the design double diamond[7], which is a true model of design *process.* It is worth noting in this connection that CPTED lacks a decent process model (see Ekblom chapter 5 in this volume).

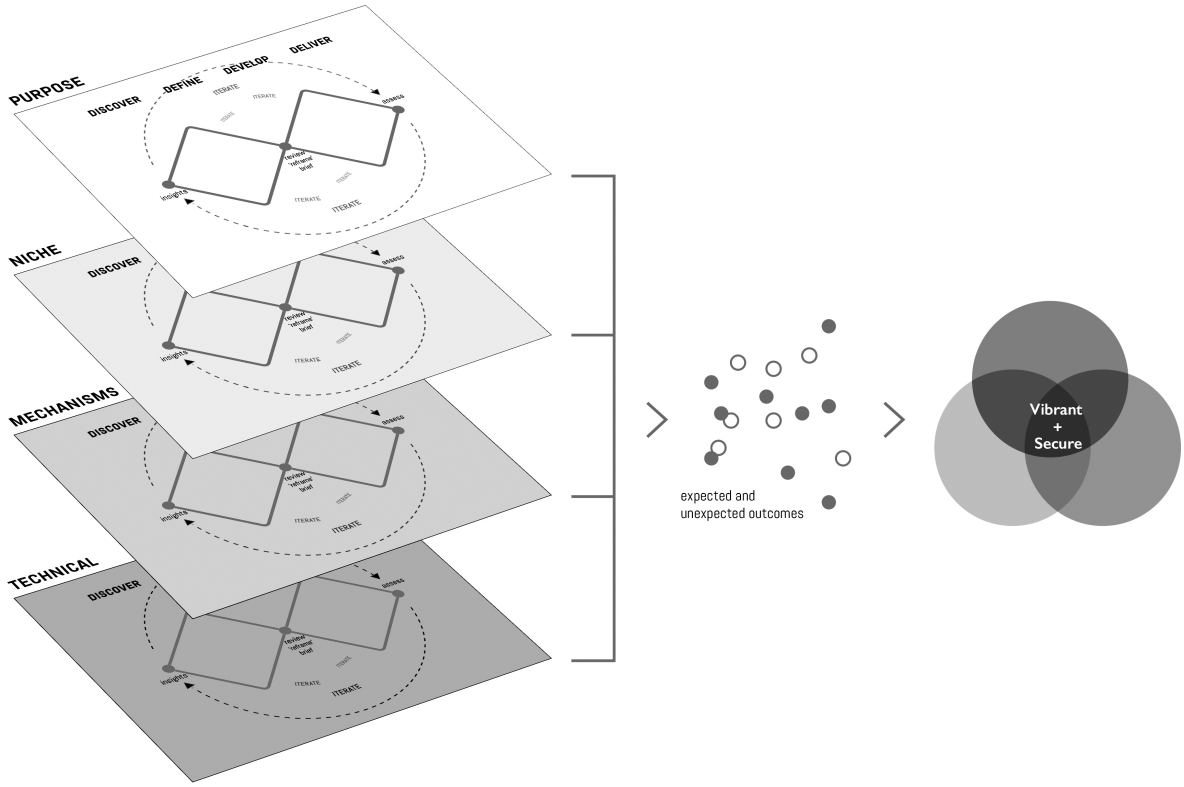


Figure 11.10 Levels of VSFF design

The designed product – eBenk

The resulting street furniture design became known as “eBenk” (eBench), and is shown in Figure 11.11. During development, earlier concepts were called “Kontakt” (Contact) to reflect efforts to accentuate connections between people and area; the iteration finally installed was named eBenk, to emphasise its functionality beyond that of typical street furniture provisions. Besides multiple sitting positions, the round bench offers free on-street wifi, free charging for mobile devices, ambient lighting and an electricity point to supply public activities. There was a large, connected version and a small one lacking physical connection to wifi or power points, but with passive

connection through close proximity to the larger version. The intention is that the two sizes be situated adjacently, partly to afford different groupings of users and sitting positions but also to promote a greater micro-sense of place. The product was installed across three sites in Oslo during the pilot period, and observations and video analysis undertaken from two of these.

Early indications of outcome

Full description and evaluation of data collected will be reported separately but initial analysis – of eBenk usage and activity, compared to controls of no benches and of standard 1.8m 'park benches' on the same sites – indicates the number of users and uses per hour increased between 150-250% during the pilot. Interestingly the staying-time of users on eBenks on any occasion seems to be less than on standard park-type benches. This probably relates to the presence of a back-rest on park-type benches and the outward-facing configuration of the eBenk. However less time spent sitting does not necessarily indicate detrimental outcome regarding perceptions of local security or vibrancy. It simply tells us that people are using different designs for different functions: a park-style bench more for longer-stay relaxation, whilst the eBenk appears to be better suited to shorter-duration sitting, but by more people and in more diverse ways.

Figure 11.11 The eBenk

Vibrant Secure Function Framework meets Crime Prevention Through Environmental Design

Assuming readers are familiar with CPTED and provenance (as covered elsewhere in this volume and reviews including Cozens (2016) and Armitage (2016; 20142013)), we now consider how VSFF relates to the CPTED principles. The link mainly operates via the Mechanism level of VSFF. While one of us (Ekblom) is separately endeavouring to reformulate how CPTED is

described (see Chapter 5 in this volume), here we adopt a typical take on its principles, being:

- Activity support
- Maintenance and Management (plus Image)
- Defensible space
- Surveillance
- Territorial reinforcement
- Target hardening
- Access control

After covering these principles, we consider VSFF's relation with SafeGrowth/Second Generation CPTED, given its growing popularity among practitioners over the past decade.

Activity Support

Unsurprisingly, the most direct way the eBenk design reflects CPTED principles is through activity support, for example increasing the numbers of people in, or passing through, a particular place, who are doing routine, pro-social activities like shopping or spending time with friends. As Figures 11.7 and 11.8 show, the VSFF support for the design process helped to centre the design response on the niche and mechanism planes and thereby boost the clarity of the activity support concept itself. The rationale is that by their presence and promotion of multiple opportunities for pro-social behaviour the benches will help diminish/legitimately satisfy criminal motivations, or deny offenders some opportunities to commit crime (Ekblom 2013b).

The eBenk works towards this on two levels. First, the offer of increased micro-scale functionality from a street furniture object supplies many more reasons for people to interact with the bench, and (equally important) occupy the vicinity where it is located. Seat-based activities promoted include taking a break, eating a snack, meeting friends, reading and checking messages. Additional reasons include charging mobile devices; accessing wifi and using power points for activities ranging from street food vans to local events needing amplification for music; wayfinding in the immediate area supported by low-level lighting. The second level at which this design fosters legitimate activity is in place-making. Given the challenges addressed, we might argue that this meso-scale intervention is at least of equal importance to the physical activities the design supports. The role of the bench to be 'something different' in the area, through its bold aesthetic form, the lighting, its projected image (discussed below) and consequent public perceptions all enable this design to establish itself as a micro- landmark and to effect a localised sense of place for pro-social activities, irrespective of people's opinions on the object per se. This promotion of activity support through projection, is closely linked to Maintenance, Management and Image. It enables the design to act as an

important place-level contributor, fitting with Project for Public Space's recommendations to establish 10+ things to do and reasons to be in some location (PPS, n.d.).

Maintenance, Management and Image

Many discourses on CPTED describe principles of 'Maintenance and Management' as purely about facilities-related logistics. In terms of ongoing care, the bench is specified to remain resilient to weather, tampering and wear and tear throughout the year. The construction employs a small range of tough materials, which are locally specified as far as possible, to ensure straightforward ongoing maintenance, periodic servicing and longevity, using basic facilities and skills already possessed by Oslo street management teams. But the bench illustrates the need to significantly extend the Image concept. To begin with, image "covers the appearance of a building, place or neighbourhood, not just [in terms of] aesthetics but relating also to social reputation and stigma of the place and its inhabitants. These factors can increase crime levels or feelings of insecurity, and harm economic regeneration." Ekblom (2013b: 3). In this sense, the purpose of offering a free-access charging and wifi station for mobile devices, which is sit-able and lit, is not only to help those needing to top-up batteries or message friends. It is also a conscious decision to communicate that the area around each eBenk is meant to serve and include a diversity of people, day and night. It is a visible gesture towards forming a new public in the neighbourhood, some of whom may thereby increase their comfort and confidence in the vicinity, the more they exploit some aspect of the eBenk. Norway has long led mobile-device uptake, so in positioning this design as a 'connected' bench, many of the audience will immediately understand the offer's wider social significance.

Defensible space

Both the street furniture design piloted in-situ and the associated twin-track, more-of/less-of approach discussed, significantly depart from 'vulnerability-led' responses of early CPTED approaches. The ambition here was to enable user-preferred levels of personal defensible space, whilst simultaneously promoting social opportunity and a better chance for amicable interaction or acknowledgement between people. The rounded form of the eBenk, plus the ergonomics of its key dimensions (1800mm diameter x 450mm sitting height), mean unfamiliar occupants can sit near each other without feeling infringements of their personal defensible space. The outward-facing characteristic means that even when people sit next to each other, they are afforded their own angle of space on the bench. Meanwhile, the 1800mm diameter means that, if they wish, users can sit 40-or-more centimetres apart (about the width of a single seat) and face in different directions, to avoid feeling forced to engage with the 'other'. This relates to observations (e.g. Whyte 1980; Willcocks 2005) confirming that strangers can sit more comfortably near each other on a single object given more diverse ways to position themselves.

Surveillance

The multi-directional options for sitting positions additionally enable differently-seated users to naturally survey a wider arc of the immediate vicinity. The full-circumference shape also implies the bench is sited away from walls and corners, giving better views of the immediate context. The eBenk integrates two central ambient lights, which serve fractionally to augment existing street lighting but at a more micro-level, help sitters and passers-by to see and be seen.

Territorial reinforcement

By establishing the additional pro-social opportunities highlighted above, the eBenk's simple physical on-street presence helps communicate and demarcate a local zone for collective activity in its vicinity. The form of the design means this is not limited to particular directions, compared, for example, to front-facing benches which can often afford a *lack* of care behind them. The lighting in the centre of the bench also acts as a hyper-local totem or landmark, important for Oslo environments, which experience long hours of dark during mid-season and winter months. Again, the low-intensity light can further facilitate a sense of place, or a reference point, including for those less familiar with the surroundings.

Target Hardening and Access Control

At the micro-level, the design offers context-appropriate target hardening, securing the unit for longevity, resistance to possible vandalism, and good maintenance access. (Control of access to the bench itself is not relevant in this public space.) Thanks to the use of dense wood and thick steel in construction, the bench is naturally heavy, needing a loading crane to move it. The thick galvanised central casing protects the workings of the lights, wifi, USB connections and power supply. Access to controls, connections and fuses is secured by an inconspicuous plate with tamper-resistant screws, hidden from view and easy access. There were no incidents of attempted or accidental tampering with the bench after the first six-plus months of on-street pilots. The light casings are polycarbonate (often used in bus stops) and also showed no signs of damage or wear, except a small muddy footprint on top during one visit, suggesting a youngster had been at play without incident.

VSFF and eBenk meet wider variants and relations of CPTED

Here we briefly consider how eBenk in particular and the VSFF more generally relate to a wider range of takes on the CPTED theme, and to the concept of social opportunity.

SafeGrowth

Saville, pioneer of 'Second Generation' CPTED (Atlas 2008), stresses the importance of participation in the processes of evolving safer, more sociable urban places. His concept of SafeGrowth builds on CPTED principles, emphasising the roles communities can also play in the designed environment to foment "local capacity to create and sustain safe communities" (Saville and

Kruger 2012). Whereas Sampson (2012) describes “collective efficacy” as a working-out of trust among residents and willingness to intervene to achieve social control – including cases where this occurs by coincidence – Saville (2009) refers to a goal of sustainable and safe urban development where there is *intentionally* designed activity to promote trust and cohesion among residents, and reduce crime and fear by enabling “those who reside in neighbourhoods [to] learn how to create and self-regulate their own safety in collaboration with service providers, planners and prevention experts.” (387: 390).

The VSFF framework and resultant eBenk designs in the current project incorporate SafeGrowth principles in various ways. Firstly, through the project’s response to citywide and neighbourhood-specific insights from both service-providers (top-down) and local communities (bottom-up), informed directly by local surveys in the 18 months before the project (Gehl 2014). Together, these illuminated the diverse personal and organisational positions regarding the local context of study and action, including its objective and perceived safety. Secondly, the prototype and on-site pilot structure of this project reflected other design processes closely engaged with the relevant communities (or ‘users’), since the pilot period was structured to observe user and dutyholder responses, track activity patterns, collect feedback, invite local critique and learn from all these. Whilst the limited capacity and scope of this project precluded a more thorough post-installation engagement with users, it did however, undertake community-linked engagements through the on-site interviews and conversations with users and locals in the installation areas. One example was the operator of the ice cream kiosk near one of the installation sites in the Aker Brygge neighbourhood. She frequently fed-back with interest to the Norfax team when they returned to make checks of the installation, he described the “surprising” levels and ranges of social activity the bench was experiencing, compared to the normal activities at the site. Whilst outside

the formal project evaluation, such engagements by ‘champion’ individuals, who might spread the word about the new design, added to those accessing the online space created for the eBenk (www.ebenk.no). Together they contributed towards what Gamman and Thorpe (2016) and Per-Anders Hillgren (2013) call *public-forming* around an issue of interest. It appears that following the introduction of the eBenk in its pilot locations, an awareness began to arise among different communities of this addition to each area; that generated not just increased use but also interest, critique and curiosity. It is too early to know for sure whether the intervention has realised Sampson’s vision of strengthening social ties in the neighbourhood. We can however understand some of the responses and engagements observed as significant in SafeGrowth terms, working towards communities which are socially as well as physically mobilised through the design.

Third generation – insider or outlier?

We acknowledge that disparate takes remain on what constitutes the so-called third generation of CPTED and we are convinced of the value of continued exploration of this through both theory and practice. For the purposes of reflecting on the framework approach and resulting design introduced above, we consider two characteristic aspects of third generation CPTED – those of sustainability and of opportunity. The latter is taken in a broader sense than as the ‘crime opportunity’ focus at the heart of SCP.

Sustainability

Tensions over how to dovetail contrasting demands between crime prevention and urban frames of sustainability have been debated since at least the early 2000's. Cozens proposes the challenge partly stems from lack of compatible modes for understanding need and impact among the differing specialists, their agendas and practices. He highlights, for example, that "relying on officially derived crime statistics for the purpose of measuring sustainability could undermine such a protocol, which should arguably include indicators for fear of crime and the perceptions of different user groups within the community" (2008: 280). As a possible response in this space, Unicri and MIT Senseable City Lab offered in 2011 an approach which seemingly sought new practical ways to merge green, networked and community-centred designs on urban sustainability with context-driven CPTED. They described a "new vision for a third generation of CPTED through minimum-impact, sustainable, environmental design strategies that use situated, green technologies [… one which] also focused on reducing the fear of crime and enhancing the perception of security" (April 2011:14). Their report asserts these goals should be achieved through specific involvement of places, people, technology, and networks, in order to combine new and emerging assets in each of these frames towards common sustainable and safe goals. Whilst such approaches are admirable in their ambition and continue to attract attention, critics worry that third generation urban-sustainable takes on CPTED have yet to prove themselves in practice. Saville, for example, suggests that the success of the Unicri MIT vision depends upon evolution of both its logic and its real-world applications, and that it needs development of "real theory with practical strategies" (Saville, 9 December 2015).

We contend that the VSFF and the eBenk design which emerged through the Oslo Project can help here. Firstly, the framework offers a structure within which mixed pro-social drivers and actions – such as demands for sustainable mobility and vibrant neighbourhoods – can be detailed and mapped more equitably and transparently against those drivers and actions for mitigating crime, anti-social activities, fear of crime or wider negative perceptions in the same context. This seems to work both *prospectively* towards scoping, briefing and developing new measures – answering the critique of Lulham et al. (2012) – and *retrospectively* within evaluation processes and sharing of practice and learning. Secondly, the eBenk design that was realised and implemented in conjunction with this framework, nicely illustrates how several urban sustainability and security factors can operate together, involving places, people and technology and to some extent networks (the Unicri-MIT frames referenced above), through a real-world application. The Oslo Project began by seeking interventions to facilitate greater social and cultural sustainability by stimulating personal confidence within the environment, better affording social interactions and supporting prospects for ongoing local cultural activities – each augmenting urban vibrancy. As discussed, these pursuits came under wider plans for areas such as Kvadraturen to boost their economic and environmental sustainability as they seek to attract more people and more diversity of legitimate activities. The development process leading to the eBenk strove to serve these agendas. The pilot conducted gives only a provisional picture of how the design as a 'measure'

serves long-term context-linked aspects of social, cultural, economic and environmental sustainability. However, video analysis does indicate more uses when eBenk was installed, compared to traditional benches in the same locations. Perhaps this hints at greater social sustainability?

Thanks largely to efforts of the manufacturer Norfax, we can report that the bench offers promising environmental consideration through its material specification and production/use life-cycle. The design employs an intentionally small pallet of separable and recyclable or reusable and responsibly-sourced materials, principally including Norwegian spruce (a local, hard-wearing softwood), galvanized steel and polycarbonate (each recyclable). Following the first pilots through several seasons of Oslo weather including sun, rain, snow and sub-freezing temperatures, the eBenks tested survived unharmed. Additionally, the lack of signs of misuse or tampering, indicate good prospects for longevity among diverse users and uses in different on-street locations.

Opportunity

Clearly, the Activity Support characteristics noted above contribute significantly to the wider societal opportunities engendered via the introduction of the eBenk. The eBenk design is intended to be resilient in face of both anticipated and unanticipated uses, not simply to minimise running costs and reduce misuse, though these are of course 'desire' and 'hygiene' requirements. Moreover, the resilience is intended as a form of welcome to the vicinities the bench is located in. The lasting invite for different people – to sit, to charge their phone, connect to wifi or access electricity for programmed activities such as food vans or live music – is an applied way not just to reframe approaches to crime and fear of crime, but also to actively widen the pallet of pro-social visions in the given context. Thorpe and Gamman explain that "despite the inclusion of social ecology and psychology within theories for Crime Prevention Through Environmental Design, linked to strategies such as activity support … the majority of design-led crime prevention practice has been oriented around target hardening and reducing risk (probability of harm), rather than promoting opportunity (probability of benefit)" (Thorpe and Gamman 2016: 321). If the 2011 Security Function Framework acted as a crime-prevention-design focus, then from the Oslo Project, the VSFF has worked to offer a more socially-enriched version of this. Here, the risks of fear and of uncertain perceptions about different areas in the city, are taken and transformed as opportunities to design-in new ways to better care for diverse publics to greet them, and to hold their future interests in mind through each step of the design process.

Conclusion

A glowing article by VG News (Norway) following the introduction of the eBenk to Kvadraturen, hails "…the new telephone kiosk" (Bugge, 09 November 2016). This interpretation supports the idea that the new street furniture design could form part of a new wave of connected, safe and people-centred street experiences – a notion very much echoing Saville's visions for CPTED evolutions. However, the article also rightly states that as yet, this is a time-limited pilot and time will tell how the intervention might fare and support diverse activities over at least a half-decade. We hope that the VSFF approach developed through this same project might prove similarly resilient and transferable.

The details in Sections 4 and 5 of this chapter show that the Oslo Project in Kvadraturen gratifyingly generated a diversity of promising proposals. It is at least plausible that the development and application of VSFF in the design process helped to *stimulate* and inform this variety rather than merely record it. The ideas that were generated and implemented expressed CPTED principles, *in parallel* with multiple capacities to promote local vibrancy among very diverse, non-crime agendas. All the familiar CPTED principles survived the challenge of incorporation within this wider perspective and could be brought within VSFF, though Activity Support and Territorial Reinforcement became significantly broader in their scope and the former, especially, dominant. But we note in connection with Ekblom's chapter in this volume that there remains work to do on the CPTED principles themselves, on conceptual but ultimately also practical grounds. That work should ultimately attempt to draw in the widened perspective developed here.

From a traditional CPTED perspective both the framework and resultant designs are best viewed as *outliers*, in the sense that their respective development and uptake was not, and we argue, did not need to be CPTED-led. However, that is exactly the point of third generation approaches to CPTED. CPTED works best when acting beside, not in front of other real-world context and community-linked priorities. It is in this scenario, that we hope the example and resources given offer some useful references to working through multiple 'asks' of design and crime-prevention for complex urban contexts, in parallel. We believe the Vibrant Secure Framework approach can help afford both the depth and structure required to mitigate fear and promote security, together rather than in competition with space required towards sustained pro-social vibrancy and towards the creativity required to rethink how our designed environments can serve people better. Does it work in other contexts? We suspect it can. Make a new iteration and see.

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[1] 'Dutyholders', collective term for stakeholders having a duty of care through service provision for the context in question, e.g. municipal departments, transport authorities, service contractors and property managers.

[2] An applied science seeking to reduce crime and its harms, and to augment security, that is evidence- and theory-based and centred on understanding and intervening in the immediate

causes of criminal events rather than predispositions and motivation of offenders, or influences of wider societal structure. See Ekblom's Chapter 5 in this volume.

[3] https://www.oslo.kommune.no/getfile.php/1374699/Innhold/Politikk%20og%20administrasjon/Politikk/Kommuneplan/Ny%20kommuneplan%202015/Kommuneplan%202015%20del%201%20justert%2031.01.2017.pdf

[4] For example, in the form of on-the-ground knowledge assets, from shared experience and local development activities, among built environment, security and transport and culture experts in Oslo.

[5] While ultimate outcome indicators are preferable, intermediate ones are quicker and less costly or constraining, important in practical design contexts requiring rapid feedback; they can also illuminate causal mechanisms underlying any security effect.

[6] In social sciences, social ties typically cover people's capacities to depend upon each other. Spatially however, this can translate to opportunities for social interactions that may help residents and visitors establish recognition and forge relationships with associated communities and places.

[7] See Box 2 above and www.designagainstcrime.com/wp-content/uploads/2017/02/Double_diamond_process_DACRC_SRDI.pdf