In order to be effective in crime reduction, it is

and accountability meetings.[5] The implementation of crime analysis and stratified policing in the first year included:

1. Data and crime analysis: Access to crime and calls for service data were streamlined for analysis purposes (i.e. improvements to the records management system). Data integrity issues were addressed as they arose. One dedicated full-time crime analyst conducted all types of analysis during the year.

2. Organizational training: All supervisors, managers, commanders, and crime analysts were provided a one-day training and follow-up assistance on the products, processes, and their responsibilities within the WCSO-stratified policing model.[6]

3. Set crime reduction goals: WCSO selected goal crimes that would be prioritized for response and measured for evaluation. They were burglaries from vehicles, residential burglaries, commercial burglaries, and criminal mischief.

4. Stratification of responsibility for problem solving: Significant incidents (i.e. major crimes) were assigned to investigations bureau; repeat incidents were assigned to patrol sergeants; patterns were assigned to lieutenants, and problems were assigned to captains.

5. Meeting structure: Daily patrol briefings; weekly action-oriented meetings agency wide; monthly evaluation-oriented meetings agency wide.

6. Communication: An intranet site was developed to facilitate communication of crime analysis and responses among all divisions and ranks.

7. Policy: A general order for implementing stratified policing and proactive crime reduction activities was created and disseminated to establish roles and responsibilities of all personnel.

During the first year, crime analysts created products on a regular basis, agency personnel responded accordingly with evidence-based practices (e.g. directed patrol in short-term hot spots; working with business owners for commercial burglary problems), and weekly as well as monthly accountability meetings were conducted on a regular basis. Because this was a change in the organization and not just a programme with a clear beginning and end, once established, these processes continued throughout the year. While this study does not focus on closely examining the impact of stratified policing implementation on crime itself, WCSO reported reductions in its goal crimes from 2014 to 2015. Specifically, WCSO saw a 12.5% decrease overall (813 in 2014 to 711 in 2015), with a 4.5% decrease in vehicle burglaries, a 6.4% decrease in residential burglaries, a 42.9% decrease in commercial burglaries, and a 19.8% decrease in criminal mischief.[7]

Methodology

To measure organizational change after the first year of stratified policing implementation, two waves of the same organizational survey were disseminated to all WCSO sworn personnel through an internet link. The first wave was administered in May 2014 (i.e. 'baseline') and the second wave in February 2015 (i.e. 'implementation'). An introduction to the survey ensured the respondent was focused exclusively on proactive crime reduction

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[5] This author and Dr. Rachel Santos conducted a needs assessment and provided a 50 page report that tailored stratified policing to WCSO based on the guidebook, A Police Organizational Model for Crime Reduction: Institutionalizing Problem Solving, Analysis, and Accountability (Boba and Santos, 2011).

[6] The training and assistance was provided by this author and Dr. Rachel Santos.

[7] There were 224 vehicle burglaries in 2014 and 214 in 2015; 281 residential burglaries in 2014 and 263 in 2015; 56 commercial burglaries in 2014 and 32 in 2015; and 252 in criminal mischief in 2014 and 212 in 2015. Statistics provided by WCSO in their 'Annual Review 2015' produced by the crime analyst.

activities when completing the survey.[8] It also ensured each respondent's anonymity. In both waves, respondents were told that they would be asked to take the same survey again in the future to examine changes in the organization.[9]

The language of individual survey questions is covered in the analysis results section when the finding for each measure is presented. Scales with eight values (0–7) were used for all survey questions so that the range of answers was broad enough to see changes over time since the intent is to administer the survey in multiple years in order to see incremental changes in the organization. The scales used values that represented: (1) agreement, (2) frequency, (3) transparency, (4) amount, and (5) satisfaction. The labels for each scale are provided in the relevant figure along with its corresponding values.

For the analysis, many composite measures were created from multiple questions to represent particular concepts. The average of multiple items on the same scale was used to create the composite measures, so all findings could be interpreted with same range of values (0–7). In addition, a Cronbach's alpha test was run for each composite measure for both waves together to test for internal consistency and reported with each measure as a footnote. All test results are well above the 0.70 threshold acceptable in social science (Field, 2009).[10]

Table 1 shows the survey response counts by rank as well s we(s)-50a arnot0(n)1ssbaed in cnumbr 7f shwor alt-406.2(ihe)-402.3(pime)-24a she survey thyu   aa

- Leadership participation (composite, four items[16]): How much do you agree that the people in the rank directly above you do the following: (1) directly participate in day-to-day proactive crime reduction and problem solving; (2) teach those in your rank about day-to-day proactive crime reduction and problem solving; (3) encourage those in your rank to participate in day-to-day proactive crime reduction and problem solving; (4) promote teamwork for those in your rank to participate in proactive day-to-day crime reduction and problem solving.
- Clear expectations (single): How much do you agree that there are clear expectations for your rank in participating in day-to-day proactive crime reduction and problem solving?
- Accountability (composite, seven items[17]): How much do you agree that each group is being held accountable for day-to-day proactive crime reduction and problem solving? (1) deputies; (2) investigators; (3) sergeants; (4) lieutenants; (5) captains; (6) majors; and (7) sheriff.

Figure 2 shows the means and significance levels for each wave of these four measures. Before implementation WCSO personnel 'slightly agreed' (4.18) that the agency's leadership was focused on crime reduction. After the first year of implementation, there was a significant improvement (p < 0.01) closer to 'somewhat agree' (4.64). Personnel also 'slightly agreed' about leadership participation before implementation (4.22). While this measure did improve after implementation to 'somewhat agree' (5.19), it was only significant at the p < 0.10 level.

In terms of accountability, all means were numerically higher than the means for leadership. Personnel 'somewhat agreed' (4.86) that there were clear expectations for crime reduction before implementation, and there was significant improvement after implementation (p < .01) closer to 'mostly agree' (5.53). For the second accountability measure, personnel were between 'slightly' and 'somewhat agree' (4.67) that all ranks were being held accountable for crime reduction work. There was also a significant (p < 0.01) increase closer to 'mostly agree' (5.36) after implementation.

Communication and Transparency

Communication about crime reduction activities and transparency about roles and responsibilities is central to successful implementation of stratified policing. It is important leaders send a consistent message along with a structure of clear processes and practices (Carnall, 2009). These should be communicated initially and throughout implementation to overcome resistance (Mills et al., 2009) beginning at the top and encouraged at each successive level below (Bolman and Deal, 2008). In addition, any plan should be realistic and achievable and processes are clearly 'defined, tasked, constituted, and resourced' (Carnall, 2009, p. 104), in other words transparent.

Consequently, respondents were presented with 17 items that asked specifically about communication and transparency of the agency's crime reduction efforts. Four composite and one single measure were created. The scales vary by measure and are noted below:

- Communication within/between groups (composite, four items,[18] frequency scale): How often do the following groups have clear communication about day-to-day proactive crime reduction and problem solving? (1) those
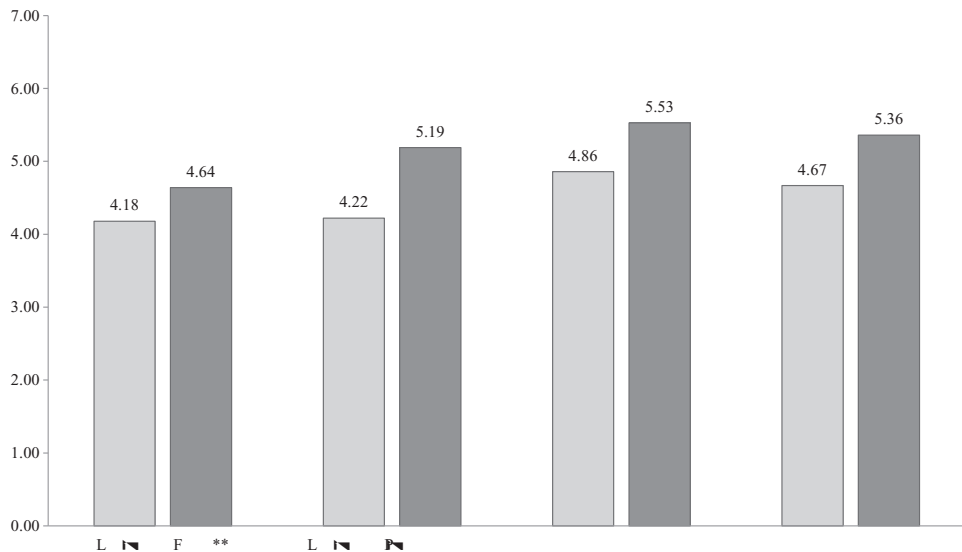
narcotics/vice; and (4) those in your rank and crime analysts.

- Communication between ranks (composite, five items,[19] frequency scale): How often do you think the following groups have clear communication about day-to-day proactive crime reduction and problem solving? (1) deputies and sergeants; (2) sergeants and lieutenants, (3) lieutenants and captains; (4) captains and majors; and (5) majors and sheriff.

- Transparency (single, transparency scale): How transparent are the roles and responsibilities of personnel in the agency's overall day-to-day proactive crime reduction and problem solving?

- Supposed to do and actually do (composite measures, seven items,[20] amount scale): How much do you know about what each group is supposed to do in day-to-day proactive crime reduction and problem solving? and How much do you know about what each group actually does for day-to-day proactive crime reduction and problem solving? (1) deputies; (2) investigators; (3) sergeants; (4) lieutenants; (5) captains; (6) majors; and (7) sheriff.

Figure 3 shows the means and significance levels for the two waves of these five measures. The results show significantly more communication ($p < 0.01$) within and between groups from 'occasionally' (3.23) to 'often' (4.03) after implementation of stratified policing. There is also significantly more communication ($p < 0.01$) between ranks from 'often' (3.94) to 'frequently' (4.72) after implementation.

The single measure for transparency of the roles and responsibilities of personnel significantly improved ($p < 0.01$) from 'somewhat transparent' (3.15) closer to 'fairly transparent' (3.74).

Similarly, both composite measures of transparency improved significantly as well. The figure illustrates that what individuals thought ranks were 'supposed to do' for crime reduction significantly improved ($p < 0.01$) and moved closer to 'fairly transparent' (from 3.40 to 3.89). Results for what individuals thought ranks 'actually do' also significantly improved ($p < 0.01$) to just above 'fairly transparent' (from 3.56 to 4.18).

Proactive crime reduction activities

In the context of proactive crime reduction, police agencies struggle with fully institutionalizing new and better practices. They compete with the ingrained culture of responding to calls for service, investigating crimes, and making arrests which when applied generally do not reduce crime

Value			0		1		2		3		4		5		6		7
I	/	A	N													

scale): How often does your agency identify the following for response? and How often does your agency attempt to permanently resolve the following? (1) an individual address with repeat calls over several weeks, and (2) a pattern of several crimes over one to several weeks (linked by some or all of the following: suspect, area, MO, time/day, property type).

- Identify and resolve long-term activity (composite, three items, two measures,[22] frequency scale): How often does your agency identify the following for response? and How often does your agency attempt to permanently resolve the following? (1) an address that has been a problem for 1 or more years; (2) a hot spot area that has been a problem for 1 or more years; and (3) a chronic offender who has repeatedly been arrested for 1 or more years.

- Satisfaction (single, satisfaction scale): How satisfied are you with your agency's overall day-to-day proactive crime reduction efforts?

Figure 4 shows the means and significance levels for each wave of these five measures. The results show significant improvement ($p < 0.01$) in how often the agency identifies and permanent resolves of short-term activity from 'occasionally' (3.79 and 3.94) in the baseline survey to 'frequently' (5.13 and 5.14) after implementation. WCSO also saw significant improvement ($p < 0.01$) in the identification and resolution of long-term activity from 'occasionally' (3.75 and 3.74) in the baseline survey to 'frequently' (4.57 and 4.64) after implementation. Lastly, the satisfaction personnel had with the agency's overall crime reduction activities improved significantly ($p < 0.05$) from between

'slightly' and 'somewhat satisfied' (4.48) closer to
'somewhat satisfied' (4.87).

Discussion of findings

The findings from the implementation of crime
analysis and stratified policing by the Walton

were more transparent after stratified policing im-

efforts. Even more meaningful, there were significant improvements to WCSO's crime reduction culture in terms of leadership, accountability, communication, and transparency which are all important and necessary factors for true organizational change (Crank, 2004; Carnall, 2009; Macleod and Todnem, 2009).

Conclusion

This study contributes to ongoing police research and practice in terms of how police leaders can successfully implement and sustain crime reduction strategies in their agencies. When implementing a crime reduction approach, it is important to determine if crime is reduced. Just as important is to determine whether there is an impact on accountability, leadership, communication, and transparency as well as whether the agency experiences organizational change and can sustain its crime reduction efforts.

When police leaders seek to implement crime analysis and evidence-based crime reduction strategies, they should consider an organizational structure and processes that will transform the crime reduction culture to institutionalize evidence-based strategies as part of normal business. When such a structure is achieved, an organization will be better suited to sustain crime reduction efforts. This article illustrates one agency's success; however, with additional research of stratified policing and other such approaches, police leaders will have a better understanding about how to institutionalize crime analysis and evidence-based approaches in their organizations.

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Appendix

Table A1: *T*-test results

	Equal variance	Ba line e , mean (SD)	Implemen a ion, mean (SD)	*t*	df	Sig. (o-ailed)	Mean difference	S d. error difference
Leadership and accountability								
Leadership focus	Assumed	4.18 (2.11)	4.64 (2.13)	–				