MEDIA FRAMING THE RECEPTION OF UNMANNED AERIAL VEHICLES IN THE UNITED STATES OF AMERICA

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ABSTRACT

When the United States Congress mandated implementation of unmanned aerial vehicles (UAVs) into the domestic airspace in 2012, there was substantial opposition to the policy change. Critics expressed fears regarding their threat to privacy and safety, and legislatures considered numerous bills that would significantly limit or even ban domestic unmanned flight. UAV advocates used various methods to counter UAV's negative image.

This study examines media stories regarding UAVs over a four-year period (2011-2014) and demonstrates that despite the backlash against expansion, media frames emphasizing benefit rather than risk dominated in the U.S. media. The economic opportunities presented by UAVs appeared in most media reports and over time reports increased of relatively noncontroversial applications, such as agriculture. Citizen advocacy or frames that emphasized the personal freedom to fly a UAV also increased. Industry and university officials, who usually support expansion, were the most frequent sponsors of media statements. The framing of media reports can influence public debate. Potential risks of a new technology can be amplified or minimized depending on how the media present the issue to the public.

Keywords: Drones, FAA, Media Framing, UAV

24 **Abbreviations.** *AUVSI—Association for Unmanned Vehicle Systems International, FAA—U.S. Federal*
25 *Aviation Administration, UAV—Unmanned Aerial Vehicle, UAS—Unmanned Aerial*
26 *System, U.S.—United States of America;*

27

1 INTRODUCTION

Unmanned aircraft vehicles (UAVs) have until recently been associated with lethal military operations by the United States of America (U.S.). However, there has been growing interest in their domestic applications since the adoption of the Federal Aviation Administration (FAA) Modernization Act of 2012 (PL 112-95), which mandated that the FAA safely integrate commercial UAVs into American airspace by September 2015. Advocates of unmanned aircraft claim that they can make significant contributions in the fields of criminal justice, agriculture, journalism, film production, and search and rescue. However, this emerging technology faced significant roadblocks to acceptance after the Congressional mandate to integrate UAVs into the domestic airspace. The FAA proceeded very slowly to draft regulations to allow commercial flight, citing safety concerns. Further, UAV supporters confronted hostile public opinion and state and federal lawmakers suspicious of the legalization for domestic use.

This analysis examines how the U.S. media over a four-year period (2011-2014) has covered the implementation of UAVs into domestic airspace. Like many emerging technologies, domestic unmanned flight combines risk with a high level of potential benefit. It has also been highly politicized. The paper starts with a description of the political and regulatory environment surrounding domestic unmanned flight after Congress authorized its expansion. It then presents a discussion of media framing and the research questions examined regarding the media and unmanned domestic flight. After reviewing the project's research design and methods, the paper discusses the findings regarding the media's coverage of UAVs. It concludes with suggestions for future research.

1.1 CONTENTIOUS ENVIRONMENT FOR DOMESTIC DRONE EXPANSION

Domestic UAV uses raised complex issues, privacy, and safety in particular (Bennett, 2012; Dolan & Thompson, 2013; Elias, 2012; GAO, 2012). Public opinion showed a great deal of

unease; a survey reported that 63% of Americans were opposed to drones flying through most of U.S. airspace (A. Smith, 2014). The intensity of the opposition was apparent in the policy debates. One town passed an ordinance banning all drones (Sullivan, 2013), and at least one other municipality considered issuing licenses to shoot down drones (Steinmetz, 2014). There were impassioned speeches in Congress pointing to the dangers of UAVs (Kaminski, 2013; Villasenor, 2013), but it was the U.S. states where most of the political activity to restrict UAVs has taken place (National Conference of State Legislatures, 2015).

Between 2012 and 2015, almost 500 UAV-related bills have been introduced in the U.S. states, and several states adopted laws restricting UAV use (National Conference of State Legislatures, 2015). UAV supporters had reason to fear that legitimacy would never develop; proposed legislation in some states would prohibit UAV ownership or make it illegal to take aerial photography. Some states would allow aerial photography only if the landowner has given permission (Bohm, 2014; Nanjia, 2014). One bill analysis reported that regulations that prohibit UAV use over private property will significantly limit or even end most commercial and research use of UAVs (Rainwater, 2013).

The opposition cited safety concerns. Military UAVs have high crash numbers (McGarry, 2012), and some have pointed to the danger to winged aircraft from unmanned flights (Whitlock, 2014). Government officials had also raised the possibility that UAVs could be hijacked by disrupting or taking control of the UAV's non-encrypted signals from the Global Positioning System (Brewin, 2013). Several incidents raised concerns regarding the safety and the liability that flyers of recreational and especially commercial UAVs may face. Operators have lost control of UAVs in public areas (Jones, 2014), in one case killing a man (Goodman, 2013).

UAV advocates worked to counter the negative press reports and prevent the adoption of restrictive legislation. To differentiate domestic UAVs from militarized UAVs, the term “drone” was never to be used by industry (MacGillis, 2013; Morley, 2012). Positive projections regarding drones’ impact on economic development were widely disseminated, with the agricultural sector receiving particular attention (Traverse, 2013) (Fig. 1).

Fig. 1. Agricultural UAV used for commercial crop scouting

In 2012-2013 news of militarized drones (Fig. 2) combined with revelations that the U.S. National Security Agency was collecting information on millions of people produced strong resistance to the Congressional mandate to integrate UAVs into U.S. airspace. Were domestic UAVs useful tools producing tremendous economic benefit or spying robots that could create significant safety hazards? The way in which UAVs were framed in the media would likely play an important role in the development of their legitimacy.

Fig. 2. Weaponized UAV—MQ-9 Reaper in flight (Ferguson, 2007).

1.2 FRAMING, THE MEDIA, AND UAVS

Considerable research shows that media framing can play an important role in views formed around emerging technologies (B. Scheufele, 2006). Media frames refer to the way journalists, groups, policymakers, and others interested in a particular public policy present information. A frame highlights some aspects of reality while concealing facts as it typically makes more salient targeted information or perspectives (de Vreese, 2012; Entman, 1993; Entman, Matthes, & Pellicano, 2009). Journalists frame stories with the goal of making the complex information interesting and understandable (Gitlin, 1980). Policy actors use media framing to persuade. A frame may suggest the superiority of some types of political action over others (Chong & Druckman, 2007; Slothuus & de Vreese, 2010). Effective framing can mobilize supporters for an issue, increase support, and demobilize antagonists (Benford & Snow, 2000; W. A. Gamson & Modigliani, 1989; Pan & Kosicki, 2001; Polletta & Ho, 2006; Reese, Gandy Jr, & Grant, 2001). Political actors may strategically provide information to journalists with the goal of dominating the frames presented (Entman, 1993; L'Etang & Merkelsen, 2011; M. A. Smith, 2000).

This study analyzes how the U.S. media has covered the contentious issue of domestic UAV expansion. Unmanned flight differs from other public policies such as nanotechnology or bioengineering. Most Americans have observed or can visualize UAVs. The public's knowledge

of UAV's potential is likely much higher than with many other technologies, but potential dangers are also better understood. Thus, the pattern of media coverage of UAVs may or may not parallel the media's reporting of other science and technology policies.

The following questions are addressed over the four-year study period:

1. What frames are present in the media coverage of domestic expansion?
 2. Has coverage of domestic applications changed through the study period? UAVs have a variety of uses. While some applications, such as agriculture, are relatively noncontroversial, UAV deployment by law enforcement has met with considerable resistance.
 3. What types of UAV applications are identified in the articles?
 4. Who is the source of the statistics, quotes, or paraphrased statements that appear in the articles about UAVs? Coding is done for each article to ascertain who is providing the information appearing in the media reports. The first three sources in each article are categorized. An analysis of media sources provides context regarding the articles beyond the frame used.
 5. Are there a variety of sources for the statistics, quotes and paraphrased statements and are they representative of the pattern often found in reporting on science and technology?
 6. When citizens rather than interest groups, government officials, or scientists are the source of media statements, are these statements supportive of UAV expansion or not?
- The tone of citizen comments regarding domestic expansion were coded to provide insight into the role of the U.S. public in the media coverage.

1.3 SOURCES AND METHODS

Keyword searches of an online data bank using only U.S. sources supplied the analyzed stories. It contained current and archived content from local (serving a city or region) and national (circulates through the whole country) newspapers, blogs, newswires, journals, broadcast transcripts and videos. This news bank (Access World News: Research Collection, NewsBank Inc., Naples, Fla.) included a total of 6,227 sources and content from all 50 states (Hart, 2014; NewsBank Inc., 2015). Since the U.S. Congress mandated the implementation of UAVs into domestic U.S. airspace in 2012, beginning in 2011 provides information regarding expectations before there were controversial discussions of domestic UAV commercial flights.

An inductive approach derived the keywords used in the search of news articles and to construct a classification scheme for the content of UAV new stories (Abrahamson, 1983). After scanning a large number of the news stories, it was determined that two keyword searches would yield the most comprehensive list of media reports that focused on domestic UAVs. One search used the keywords “unmanned aircraft” and the second search used the keywords “unmanned aerial.” The commonly used term “drone” was not a keyword because it produced articles that were not related to unmanned flight. Most articles employing the word drone that involved UAVs also contained the terms unmanned aircraft or unmanned aerial. Furthermore, news stories used the terms “unmanned aircraft” or “unmanned aerial” that did not contain the word drone.

The keyword searches scanned only the first or lead paragraph of each story. Since the lead paragraph is the most prominent element in the text (Di Gregorio, Price, Saunders, & Brockhaus, 2013), this selection method allows us to distinguish the news stories with UAVs as a focus rather than a secondary story line. Of the articles identified, we eliminated any stories that did not deal with the domestic deployment of UAVs. If a story appeared in both searches,

only one was considered. The analysis did not consider articles that consisted of only business or stock reports.

The news articles left were presented in chronological order. A skip interval was used to select every other story for analysis. This process yielded the following number of reports per year: 300 for 2011, 416 for 2012, 652 for 2013, and 505 for 2014.

According to **Entman (1993)**, news selection and salience are the theoretical bases for framing. Using Entman's definition of issue framing, frames promote a particular problem definition, suggest causal relationships, and offer a moral evaluation or suggestion solutions to the problem. To develop a set of issue frames that adequately address the news coverage of UAV expansion, we read a large number of press reports to identify the common narratives regarding this technology

In addition to the press articles, we reviewed the material disseminated by industry and a wide range of nonprofit organizations (**Boykoff, 2008**). Legislative research reports were analyzed along with the information disseminated by the FAA. Using these sources, we identified three types of issue frames that describe virtually all of the stories regarding domestic UAVs in the U.S. These frames also encompass the news frame categories used in other analyses of media framing of science and technology (**Anderson, Allan, Petersen, & Wilkinson, 2005; Lively, Conroy, Weaver, & Bimber, 2012; Nisbet & Huge, 2006**).

Four frames involve benefits from UAV expansion while two frames encompass the risks that accompany expansion. Regulation constitutes the third frame. There are four types of Benefit Frames. One describes the economic development that the domestic UAV will provide, which included references to job growth and improved increased revenue for the U.S. jurisdiction that allows expansion. A second frame discusses the advocacy of citizens who want

expansion because they perceive recreational or commercial benefits. A third Benefit Frame contains descriptions of how domestic UAV applications can make work easier and safer (e.g., agriculture, photography, real estate, search and rescue, and “dirty and dangerous” jobs). The fourth Benefit Frame addresses the issue of global competitiveness with a stated concern that the U.S. will fall behind without implementation of domestic UAV flights.

Two Risk Frames were identified. One addresses privacy concerns from UAVs and the other safety. The final frame encompassed legal issues. The Regulation Frame described the importance of government action in establishing rules for UAVs that will benefit the public. Articles falling in this category discussed the Congressional mandate to allow domestic unmanned flight, the role of the FAA, the responsibility of government actors to establish appropriate regulations, and intergovernmental questions regarding jurisdiction over UAVs.

Each story was read in its entirety and analyzed for content. The following information was coded by the authors for each article:

- 1) The Primary Frame, which is the frame found in the first or lead paragraph.
- 2) Any Secondary Frames that are present. These are frames appearing in the story other than the lead paragraph(s).
- 3) If one or more UAV applications are included in the article, the type of application (e.g., criminal justice or non-criminal justice).
- 4) The sponsor or policy actor of the first three statistics, quotes, or journalist paraphrased statements appearing in the article.

The sponsors were classified as falling within one of the following six subgroups:

- I. Lawmaker (local, state, and national),
- II. Agency (any level of government),

- 199 III. UAV industry (trade association and individuals describing their UAV
200 businesses),
- 201 IV. Public interest groups focused on privacy (American Civil Liberties Union,
202 Electronic Frontier Association),
- 203 V. University officials, and
- 204 VI. Citizens (any person not associated with any of the other sponsor categories).
205 Statements regarding UAV domestic implementation attributed to the category
206 designated “citizens” were further classified as either a) For, b) Against, or c)
207 Mixed.

208 The two authors did the coding. Using Holsti’s formula ([Holsti, 1969](#)), the reliability score
209 exceeded .80 for all categories coded.

210 **2 RESULTS AND DISCUSSION**

211 An analysis of frames in the media reports of domestic UAVs shows that the number of
212 reports increased between 2011 through 2013, with a drop between 2013 and 2014. Between
213 2011 and the end of 2014, the content of media frames shifted as did sponsor attributions.

214 [Table 1](#) displays the Primary Frames in the media reports, the most prominent elements in
215 the text. Consistent with media framing studies of other emerging technologies, the positive or
216 Benefit Frames dominated ([Anderson et al., 2005](#); [Lively et al., 2012](#); [Nisbet & Huge, 2006](#);
217 [B. Scheufele, 2006](#)). Risk Frames rose sharply between 2011 and 2012, primarily as a result of
218 concerns over privacy. Privacy risks peaked in 2012. Concerns over safety have been relatively
219 low, reaching 6% in 2014, the highest of the four years examined. Of the Benefit Frames,
220 economic development, in particular, has dominated coverage of domestic UAVs ([Fig. 3](#)).
221 Although falling slightly between 2013 and 2014, the Economic Development Frame has been

paramount every year analyzed. In 2013 and 2014, Economic Development and Citizen Advocacy constituted 70% of the Primary Frames. Many of these reports with an Economic Development Frame used statistics provided by the Association for Unmanned Vehicle Systems International (AUVSI), the UAV industry’s largest trade organization. In 2013, the AUVSI had issued an “Economic Report” that generated considerable press attention. The report predicted that within three years, the domestic implementation of UAVs would create more than 70,000 jobs in the U.S. and have an economic impact of \$13.6 billion. By 2025, the economic impact would increase to \$82 billion (AUVSI, 2013).

Table 1. U.S. media reports of domestic UAVs--Lead paragraph frames

	2011	2012 ¹	2013	2014
<u>Benefit Frames</u>				
Economic Development	55%	52%	62%	60%
Citizen Advocacy	5%	4%	8%	10%
Applications	21%	9%	7%	8%
Global Competition	4%	3%	1%	2%
Total	85%	68%	78%	80%
<u>Risk Frames</u>				
Privacy	8%	19%	12%	6%
Safety	2%	4%	4%	6%
Total	10%	23%	16%	12%
<u>Regulation Frame</u>				
Legal	5%	9%	6%	8%
N =	300	416	652	505

¹ 2012 U.S. Congress enacted the Modernization and Reform Act (PL112-95)

Fig. 3. Primary frames of annual U.S. media reports on domestic UAVs

A media report may have multiple frames. **Table 2** displays all of the frames, both primary and secondary, displayed in the media stories analyzed from 2011 through 2014. The percentages of stories each year containing each type of frame are displayed. These data reinforce the findings from **Table 1**; Benefit Frames are more frequent than Risk Frames. The Economic Development Frame has appeared in over two-thirds of the media reports all four years examined. These findings parallel the research of others, who conclude that science reporting is often positive, especially during early coverage of a new technology or scientific discovery. Reports often mention economic benefits (**Friedman & Egolf, 2005**).

243 **Table 2. U.S. media reports of domestic UAVs—Primary and secondary frames** ²

	2011	2012 ¹	2013	2014
<u>Benefit Frames</u>				
Economic Development	72%	69%	76%	82%
Citizen Advocacy	8%	10%	22%	25%
Applications	35%	32%	51%	44%
Global Competition	--	--	3%	4%
Total	81%	77%	84%	86%
<u>Risk Frames</u>				
Privacy	13%	30%	45%	32%
Safety	9%	28%	31%	33%
Total	18%	39%	54%	38%
<u>Regulation Frame</u>				
Legal	7%	31%	40%	44%
N =	300	416	652	505

244 ¹ 2012 U.S. Congress enacted the Modernization and Reform Act (PL112-95)

245 ² Column totals can exceed 100% because an article can have multiple frames.

246 Citizen Advocacy increased substantially after 2012. U.S. competitiveness, while never
 247 reaching 1% of the Primary Frames in any year, appeared when considering Secondary Frames.
 248 Successful frames emphasize the culture's values (Maddison & Watts, 2011). Two themes
 249 within the Benefit Frame (Citizen Advocacy and Global Competition) emphasize key values in
 250 U.S. culture, which are individualism and competitiveness (Bellah, Madsen, Sullivan, Swidler,
 251 & Tipton, 1991). While the individual liberty value emphasized by UAV opponents focused on
 252 the loss of privacy, media reports shifted from frames encompassing "personal freedom" to avoid
 253 surveillance to "personal freedom" to use a UAV (i.e., Citizen Advocacy). Frames focusing on
 254 the international competitiveness of the U.S. would likely garner media attention.

255 Risks Frames increased after 2011, probably because the Congressional mandate to integrate
 256 flight domestically produced a political backlash in some U.S. states. Privacy concerns rose
 257 considerably in 2012-2013; safety themes have risen every year. This shift is consistent with
 258 patterns found in other studies when negative problems become apparent, coverage of the
 259 science shifts toward negative (Nisbet, Brossard, & Kroepsch, 2003; Nisbet & Lewenstein,

2002; Roth, Dunsby, & Bero, 2003). The percentage of articles with a Regulation Frame jumped from 7% to 31% in 2012 and increased to a high of 44% of all 2014 articles.

Table 3 shows the types of domestic applications discussed in the media reports. For each media article that included a UAV application, the type of implementation was categorized into one of three categories: law enforcement, non-law enforcement, and a combination of both law enforcement and non-law enforcement. There has been significant apprehension regarding police use of UAVs (Straub, 2014). The number of articles examining law enforcement applications of UAVs increased from 2011 to 2012 but declined after 2012. Applications outside of law enforcement, which are generally non-controversial, fell from 2011 to 2012, but increased again. Thus, discussions of applications after 2012 shifted away from the relatively controversial use of UAVs in law enforcement.

Table 3. U.S. media reports of domestic UAVs—Types of application

Application	2011	2012 ¹	2013	2014
None Given	27%	31%	25%	26%
Law Enforcement	24%	29%	19%	15%
Other	34%	24%	38%	46%
Law Enforcement + Other	15%	16%	18%	13%
N =	300	416	652	505

¹ 2012 U.S. Congress enacted the Modernization and Reform Act (PL112-95)

For controversial issues, policy actors may compete in “frame contest” in an attempt to dominate media framing (Carragee & Roefs, 2004; W. Gamson, 2005; Watts & Maddison, 2012). In this study, sources are analyzed to answer two questions. First is the extent to which a variety of sources are included in the media reports. Second is whether some sources are more predominant than others (Stephens, 2005).

Of particular interest is the proportion of non-elite sources. Research has shown that business interests and university-associated individuals dominate as sources in media covering emerging technologies (Hornig Priest & Talbert, 1994; Nisbet & Lewenstein, 2002). Because

of the controversy surrounding UAVs and the likelihood that many in the public have an understanding of their potential risks and benefits, the statements attributed to the general public, or citizens, received a close examination.

For each media story the policy actor or sponsor of the first three statistics, quotes and journalist paraphrased statements were coded (W. Gamson, 2005; Watts & Maddison, 2012). Table 4 displays the distribution of sponsors for media statements regarding domestic UAVs across the articles examined. Several trends should be noted. Consistent with research on other technologies, industry dominated as sponsors every year followed by university officials. Both groups would benefit from domestic implementation; the UAV industry has been pushing expansion (AUVSI, 2013) and researchers and universities seek favorable attention and perhaps increased funding that UAV research may bring. Second, neither non-elected government officials nor privacy interest groups exceeded 10% of the attributions in any of the years examined. Lawmaker attributions peaked in 2013, then fell to 12%. Despite attempts by groups such as the American Civil Liberties Union and the Electronic Frontier to call attention to potential problems created by the integration of unmanned flight, their positions received limited media attention. The drop in lawmaker-sponsored statements may relate to the decline in concern for privacy. Attributions to citizens commenting on UAV legalization increased from 2011 to 2014.

Table 4. Sponsors of statements in U.S. media reports regarding UAV domestic expansion ²

Origin	2011	2012 ¹	2013	2014
UAV Industry	59%	42%	44%	53%
Lawmaker	11%	17%	19%	12%
Govt. Agency	5%	8%	5%	8%
University	23%	21%	19%	20%
Privacy Group	5%	5%	6%	4%
Citizen	9%	13%	15%	19%
N =	300	416	652	505

¹ 2012 U.S. Congress enacted the Modernization and Reform Act (PL112-95)

² Column totals can exceed 100% because up to three sponsors per article were coded.

Citizen attributions within the frames shifted during toward a more positive view of UAVs.

Fig. 4 shows the percentage of citizen attributions that were positive toward expansion. In 2011,

about one-half of statements by citizens commenting on domestic UAV use were positive.

Support by citizens dropped in 2012, but increased by 20% in 2013 and reached 74% in 2014.

Thus, there was a substantial increase in supportive statements by citizens in 2013 and 2014

compared to 2011 and 2012.

Fig. 4. U.S. media reports with positive UAV statements attributable to citizens

The impact of these media frames at this point can only be speculative. A frame may affect the way individuals perceive a problem, and therefore possibly alter their evaluation of the issue

(Slothuus, 2008). There is no direct relationship between media framing and public opinion; an

individual's interpretation of what is reported in the media is affected by numerous factors including trust patterns, attitudes, beliefs, values, and associations (Hornig Priest, 2004; Nisbet & Hoge, 2007). Nonetheless, research has linked public opinion of a technology to its coverage in the media. For example, there are several studies that suggest a connection between public attitudes towards nanotechnology and the media framing of nanotechnology (Fitzgerald & Rubin, 2005; Lee, Scheufele, & Lewenstein, 2005; D. A. Scheufele & Lewenstein, 2005).

Although Risk Frames jumped substantially with the mandate to implement unmanned flight within the U.S., the proportion of Risk Frames had fallen in 2014. Change in the proportion of various frames and in the types of UAV applications in the media reports suggest some reasons for the decline. Although some of the news articles reported positively on the use of UAVs in law enforcement, the legislative action to restrict police use demonstrate strong opposition among citizens (National Conference of State Legislatures, 2015). The media shift away from law enforcement toward less controversial applications perhaps contributed to the increasing proportion of Benefit Frames. As news of UAV applications in agriculture, photography, and other fields multiplied, media stories describing citizen support for expansion increased. Another factor to be considered is the dominance of the UAV industry as a sponsor of the media statements. Industry has provided virtually all of the estimates of economic impact.

The pattern of positive frame domination regarding media framing of domestic UAVs could change. Unrealistic expectations of the contributions of a technology can produce a shift in frames (Fox, 2013; Master & Resnik, 2013; Ruef & Markard, 2010), as can an accident or other unanticipated event. The highly positive frame of progress was replaced by Negative Frames in discussions of nuclear power after accidents at Three Mile Island and Chernobyl (W. A. Gamson & Modigliani, 1989). An airplane crash caused by unmanned flight, one or more

accidents causing severe injury or death from a UAV, or a major scandal concerning privacy could shift attention to one of the negative frames. UAV advocates have struggled to counter images of robotic surveillance and armed drones operating within the U.S. Given that only 23% of the American public trusts the federal government to do mostly right (Horrigan & Rainie, 2015), sentiment could shift quickly against unmanned flight and media attention would capture that perspective.

3 SUMMARY AND CONCLUSIONS

The mass media serves a crucial role in providing scientific and technological information to the public. Media depictions can be a significant influence on the images formed around emerging technologies and may contribute to the interpretation given to an emerging technology's uses and impact.

This analysis of media frames regarding the integration of unmanned flight within the U.S. shows that despite considerable political activity designed to limit unmanned flight, Benefit Frames were far more prevalent than Risk Frames. The economic opportunities presented by UAVs appeared in most media reports and two groups who would benefit the most from domestic expansion, industry and university officials, dominated as sponsors of media statements. News stories regarding citizen advocacy to fly a UAV increased. Concerns over privacy declined by 2014 while citizen advocacy themes have increased. Although safety themes have increased, safety appears in a relatively small percentage of the media reports.

Most people in the U.S. can probably visualize a UAV and have some understanding of their risks as well as potential contributions. These characteristics set them apart from certain other technologies, such as nanotechnology. However, these findings regarding media coverage parallel the media framing reported for other emerging technologies. The dominant frame is

positive, although media also report risks. There is an emphasis on potential economic benefits produced by the technology. Controversy increased media coverage of possible technology perils.

Possible shortcomings of this research should be noted. There may be sampling bias in the selection of keywords that did not use the word “drone”. Articles that use “drone”, which some view as a derogatory or militaristic term, and did not contain the word “unmanned”, may have contained more Risk Frames.

The controversy surrounding domestic unmanned flight is relatively new. As regulations are developed to govern UAVs and knowledge increases regarding their capabilities, media frames will likely change. Future research might consider whether there is variance in frames across different types of media. Newspapers may differ from social media. The national media supply coverage beyond the local news.

While media coverage of certain technologies can be so dominated by Positive Frames that discussions become depoliticized (Lively et al., 2012), politics are likely to remain essential for unmanned flight. The FAA has not yet finalized regulations, and the states have adopted a wide variety of laws. Federalism issues are far from resolved. Thus, the framing of this emerging technology will likely continue to evolve.

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