Using Local Radio and Podcasts for Agricultural Extension in the West of Ireland

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Abstract: This article reviews and evaluates the use of agricultural radio programming in the west of Ireland and assesses the potential for expanded use of radio and podcasts by the public agricultural extension service. The article used a variety of methodologies including data from the Broadcasting Authority of Ireland, farmer surveys, focus group discussions, key informant interviews, and comparing reactions of farmers to podcasts and written newsletters. The findings suggest that there is a high level of listenership to farming programmes on Irish local radio especially among older farmers and that the impact of these programmes is mainly in creating awareness or reminding farmers about issues, deadlines or events. The study suggests that the impact of farm radio can be maximised when it is integrated into wider agricultural extension programmes, and is locally relevant. The experiment with podcasts suggests that this is a very useful medium for knowledge transfer especially for younger audiences because of its flexibility and that there is a preference among farmers for listening to, rather than reading advisory messages. Radio and podcasts offer practical and cost effective opportunities to enhance the effective delivery of agricultural extension advice and information. Diversified knowledge sources are critical to support active information seeking by farmers and, by re-establishing a focus on radio and podcasts, there is scope for agricultural extension services to widen their reach and impact.

Key words: farm radio, local radio, podcasts, agricultural extension, farmer decision making

Introduction

The depth and breadth of knowledge required to farm is considerable and growing more complex; consequently more attention is being directed by advisory services to the process of innovation and 'knowledge transfer' and understanding how to support farmers with knowledge more effectively (EU SCAR, 2012; DAFM, 2014). The role of knowledge and learning in innovation and adoption of innovation has been widely researched since the early work of Rogers (1962) and his finding that 'the adoption of innovation depends on some combination of well-established interpersonal ties and habitual exposure to mass communication'. The role of science in relation to innovation is being reconfigured and there is greater acknowledgement of the multi-player dimensions and the institutional settings that enable learning and innovation to emerge (Caraça et al., 2009; Leeuwis, 2013). Farm innovation is increasingly seen as emerging from the lively interactions of multiple stakeholders rather than the traditional flow of new ideas from research to farmers as end user (Weilinga and Vrolijk, 2009). With the shifting paradigm from knowledge transfer to knowledge exchange and co-creation, there is less attention in extension literature to the role of traditional mass media such as radio. Digitization has opened up new possibilities and brought change in radio's role as a vehicle of mass communication with improved prospects for the dissemination of scientific work, stimulation of debate, interviews with local experts, promotion of events, etc. (Teixeira and Silva, 2011).

This paper examines the use of agricultural radio programming in the west of Ireland and assesses the potential for expanded use of radio and podcasts by the public agricultural extension service. While radio is seen more as a medium of knowledge transfer than knowledge exchange, in rural Ireland there is a strong demand for speech radio because 'country people like to talk' (Barbrook, 1992) and Ireland has the second highest level of radio listenership in the EU (Eurobarometer 2014) It is estimated that 84% of Irish adults

listening to radio daily and more than half (58%) tuning in to their local radio station (BAI 2015). In this context, we demonstrate that local radio is a potent medium that farmers actively chose to listen to on topics that interest them and that it can be used strategically in agricultural extension programming.

Agricultural Extension and Communication

Extension has been defined as '*the conscious use of communication of information to help people form sound opinions and make good decisions'* (Van der Ban and Hawkins, 1996). Leeuwis (2013) distinguishes between communications strategies and functions where a strategy is a wider intervention purpose related to the assumed nature of a problematic situation. He distinguishes 4 functions: 1) raising awareness and consciousness; 2) exploring views and issues; 3) information provision; and 4) training. Strategies and functions can be approached either instrumentally or interactively and can be implemented using a variety of methodologies, methods, tools and media. Along the continuum of the innovation decision process, Rogers (2003) outlined five critical stages from becoming aware of an innovation to being persuaded of its usefulness to the decision to adopt or not. While these are not discreet stages, awareness raising and information provision are critical in the early stages of this process with mass media playing a crucial role whereas more personalised messages and media come to the fore as the process progresses. Hornik (2004) challenges this neat dichotomy and argues that behaviour change can be influenced by any source or no source, depending on many other factors. The need to make use of all media channels available is reiterated by Balit (2012) who posits that in some cases, using traditional channels and methods that rural people are familiar with and know how to use can provide the most effective solution to information sharing and dialogue.

Radio as a Communications Medium

Within the arsenal of extension forms, methods and media, mass media including radio has certain qualities and properties that indicate its usefulness. The qualities of radio as a medium have been described by Manyozo (2009, p1) as '*pervasive, local, extensive, flexible, available, readily understood, personal, portable, speedy, and efficient'*. Radio has been taking information and knowledge to the most remote and inhospitable places for more than one hundred years (Teixeira and Silva, 2011). Some of its limitations include the difficulty for the message sender to know who they are reaching and how the messages are understood and that radio appeals only to one of the senses (Woodward, 2012). Goodman (2016) outlines the history of how 'listening groups' in different parts of the world were used to give scattered rural populations a greater opportunity to engage in discussion of current affairs.

The Uses and Gratification (U&G) theory has been an important part of communications research back as far as the 1940s (Cantril, 1942) in seeking to understand how and why people select and use different channels of communication. Ruggiero (2000) argues that U&G theory is relevant to explaining how people rely on different channels of information for different uses and typologizing the different motivation for media use in terms of diversion, social utility, personal identity, and surveillance. U&G theory posits that information sources diversification is inherently a good concept if the audience comprises active information seekers and that, when various channels are integrated, they support and empower the individual's acquisition of knowledge and learning.

Galloway (1981) and Fry and McCain (1983) suggested that the motivation to use any mass medium is also affected by how much an individual relies on it and how well it satisfies her or his need. Dervin (1980) advocated that media planners and those conducting information campaigns should begin with the study of the potential information user and the questions

that person is attempting to answer to make sense of the world. Rubin and Windahl (1986) argued that dependency on a medium or a message results when individuals either intentionally seek out information or ritualistically use specific communication media channels or messages. Rubin (1993) later points out that while media audiences are often depicted at extremes of (a) being passive and expected to be influenced by the messages portrayed, and, (b) being active and expected to make rational decisions about what media content to accept or reject, that the truth is actually somewhere in between.

Radio and Farming Communities

The importance of radio for rural dwellers in the USA has been highlighted by Hilliard (2009) who noted the main need for information on production factors for crops and livestock as well as warning of storms, mudslides and excessive heat waves. Jones et al. (2009) argued that the radio is still an effective means of communication for rural dwellers in the U.S and that it does indeed influence decision making. They examined the messages transferred to farmers about protection from the sun and the implications for skin cancer. They found that over a twelve month period, farmers were more conscious about skin care for themselves and their families and would indeed practice sun protection and promote the concept to others if they had heard messages or warnings about sun protection over the radio.

Hagar and Haythornthwaite (2005) described the critical role of local radio in UK during the Foot and Mouth crisis in 2001. In Cumbria in the north west of England (one of the worst affected areas) the provision of information to farmers and rural dwellers in a speedy manner was a critical challenge, with farmers constrained to their farms and visitors restricted from the countryside as well as the closure of many markets, events and local farming meeting points.

Misiko and Halm (2015) posit that while diversified knowledge sources and channels can enhance agricultural growth, new information channels or sources do not function independently but rather are integrated with other sources. They utilise the Uses and Gratification theory to consider how farmers rely on different channels for different uses. When the various channels are integrated, they empower the individual in terms of both the information he or she seeks and regenerates (Reagan, 1996). The incorporation of radio into effective extension programmes is supported by Moussa et al (2011) who carried out an evaluation in West Africa on adoption of triple bagging cowpea storage technology, and found that reinforcement of the demonstration experience with radio broadcasts increased adoption by statistically significant estimates of 23% in Niger and 20% in Burkina Faso. They argue that an already effective extension programme can be made more effective by associated radio messages.

Sulaiman et al (2012) argue that, while information and communication technologies (ICTs) act as media for dissemination of information, most ICT applications involve one-way flow of information with limited opportunities for interaction. The value of information transmitted is greatly dependent on its local relevance and whether it can be customised to the resource situation of local farmers. The concept of communications for development (C4D) is emerging as a new academic discipline addressing these human dimension concerns that often limit the effectiveness of development programmes (Agunga, 2012).

New Opportunities from Digitisation

Digitization has opened up new possibilities and brought change in radio's role as a vehicle of mass communication with improved prospects for the dissemination of scientific work, stimulation of debate, interviews with local experts, promotion of events, etc. (Teixeira and Silva, 2011). Lindgren and McHugh (2013) argue that the genre of the radio documentary is

experiencing a renaissance in Australia and America and that globalisation of radio listenership via podcasting and sharing of content on social media is beginning to change documentary towards a more first-person, explicitly narrated format. Albarran et al (2007) highlighted the move away from terrestrial radio by younger audiences and their preference for new technologies like MP3 players, internet radio, and satellite radio. McClung and Johnson (2010) examined patterns of podcast use in the USA and found that the bulk of podcast users were well educated and affluent, preferring to listen to podcasts on portable devices. Also in the USA, Kui Xie (2007) outlined four reasons for using podcasts in extension services including that they are flexible and mobile and take away the problem of missing information at events a distance away. Secondly, extension clients can build a knowledge base to refer back to in the future for specific problems. Thirdly, in some ways they improve the efficiency and accuracy of extension workers and finally podcasts are relatively simple to set up or indeed to receive. Kinsey (2010) also lists podcasts as one of the five social media tools for any extension toolbox.

Quality of production is a critical factor in radio and podcast programming and a number of organisations have developed guidelines to support extension agents in this field. Woodward (2012) highlights the importance of audio quality, story structure, message clarity and engagement.

Case study of Farm Radio Listenership and Impact in Co. Mayo, Ireland

In Ireland, Teagasc is the state agency for agricultural advisory, education and research services and so is the main provider of public agricultural extension services, organised on a regional basis. In one county (Mayo) in the west of Ireland, Teagasc staff have built a close relationship with a local radio station (Midwest Radio) over the past thirty years and they broadcast a daily 4 minute programme each weekday evening at 6pm and contribute to a longer 20 minute weekly programme broadcast at 10pm on Wednesday evenings. The daily slot is a roundup of the latest farming news presented by one of the Mayo farm advisors and recorded at the local advisory office. The weekly programme deals with a variety of agricultural matters, has an anchor host from the radio station and inputs from the team of Teagasc advisors in the county.

This case study investigates the listenership of these farm programmes and their impact on farmer knowledge and practice, exploring the potential for greater use of local radio as a medium for agricultural extension. The case study also includes an experiment with podcasting of information to farmers that normally would be sent to them through a written newsletter.

Methodology

Data from the Joint National Listenership Research (JNLR) by the Broadcasting Authority of Ireland was first examined to understand the overall listenership to local radio in general and to Midwest Radio specifically. This research utilises mixed methodologies including audience estimates based on the quarterly National Household Survey and face to face interviews with selected samples of representative of the population in each radio franchise areas in a geographic and demographic context (MRBI 2014).

In order to assess the extent of listenership among the farming population, a short face to face survey was conducted with farmers attending four different open agricultural events and demonstrations in Co. Mayo in 2014. The survey asked about their general radio listening habits as well as whether they listened to the specific farm programmes on Midwest Radio and what kind of topics attracted them to these programmes. When the results of the survey had been analysed, nine active farmer discussion groups in the county were used to

investigate the effects or impact that radio listenership might have on farmer decision making and practices. These included existing one sheep, one dairy and seven beef farmer discussion groups. At the end of their regular meetings the members were asked their views about the farm radio programmes and 150 farmers were involved in these discussions. A number of key informant interviews were also carried out with advisory personnel involved in developing and delivering the farm programmes and with staff of the local radio station.

The experiment with podcasting followed a similar methodology to that used by Mills (2011) in Australia, whereby the uptake of an audio file was compared with a written newsletter of the same information available on a website. Three podcasts were recorded and uploaded each month for a four-month period for dairy, beef and sheep enterprises. The format was a 5-6 minute interview with a specialist in the particular enterprise, addressing 4-5 main current issues, the same as featured in the newsletter. The number of downloads of the podcast from the website was compared with the number of downloads of the newsletter.

The listenership for agricultural radio programmes in Co Mayo

The Broadcasting Authority of Ireland released radio listenership figures in February 2015 for the final quarter of 2014 and the 6-6.15 PM slot on Midwest had a listenership level of 8,200 people for that particular segment (BCI, 2015). These listeners may or may not be farmers.

The listenership among the farming population was examined using a short face to face survey with 127 farmers attending four different open agricultural events and demonstrations in Co Mayo. While these farmers would be considered knowledge seekers, they are not necessarily clients of advisory services and would be representative of the regional profile of farmers. Of these 127 farmers, 87% were male and 13% female; 28% were in the age category 20-40 years, 39% in the 40-60 years category and 33% older than 60 years. Just under half (48%) were farming full-time while 52% classified themselves as part-time farmers. The main farm enterprise types of the respondents were mixed (31%), beef sucklers (30%), sheep (19%), beef finishers (11%) and dairy (9%).

Overall radio listenership among this group was high with 84% reporting that they listen to radio daily and only 10% reporting that they rarely listen. Of the 114 regular radio listeners, their most common times of day for listening were morning (40%), and evening / drive time (26%) with 14% stating that they listen throughout the day. Respondents were asked whether they listened to the two farming programmes on Midwest Radio and Table 1 below shows that there is a high level of awareness and occasional listenership to both programmes.

Table 1. Number and percentage of survey respondents who listen to Farming Programmes on Midwest Radio (N=127)

Frequency of listening	*Farming Scene 6.05-6.10pm Mon-Fri*	*Frequency of listening*	*Farming Matters 10-11pm Wednesday*
Never	*24 (19%)*	*Never*	*35 (28%)*
Occasionally	*56 (44%)*	*Occasionally*	*48 (38%)*
Once a week	*13 (10%)*	*Once a month*	*5 (4%)*
3 times or more	*19 (15%)*	*Once a fortnight*	*9 (7%)*
Everyday	*15 (12%)*	*Every week*	*29 (23%)*
Total	*127 (100%)*	*Total*	*126 (100%)*

From these responses, respondents were categorised as low, medium or high listeners. Low listeners included 18 respondents who never listened to either programme and 19 who reported occasionally listening to one programme. High listeners were those who listened to the daily programme at least 3 times per week and the weekly programme at least every fortnight. All others were classified as medium listeners. The relationship between being a high, medium or low listener to farm radio and a number of factors was examined and age was found to be the only statistically significant factor (Table 2). Older people are more likely to listen to farm radio than their younger counterparts.

Table 2: The relationship between age and farm radio listenership of survey respondents (N=126)

			Farm Radio Listenership			Total
			Low	Medium	High	
Age Category	20-40 years	Count	22	12	1	35
		%	63%	34%	3%	100%
	40-60 years	Count	12	25	12	49
		%	24%	51.0%	25%	100%
	>60 years	Count	3	21	18	42
		%	7%	50%	43%	100%
Total		Count	37	58	31	126
		%	29%	46%	25%	100.0%

There was no statistical significance in the relationship between listenership and farm enterprise type or whether the respondent was farming full or part time. Apart from Midwest Radio, respondents were asked if they listened to any other farming or agricultural radio on a regular basis and 84% said they did not while a small number did listen to farming programmes on national radio stations.

What do Farmers currently tune in for?

The respondents were asked to select from a menu of 5 options what they currently listened to farming radio for. The options included mart reports, technical advice, up to date information on agri-schemes, event information and rural development information. Table 3 gives a breakdown of the results by age category and indicates that as farmers get older they have a declining interest in technical farm advice and also a declining interest in events. For **older farmers, the top area of interest is the mart reports.**

Table 3: Percentage of Survey respondents in each category who listen to farm radio for different types of information

Type of Information on Radio	***All N=93***	***20-40 yrs N=21***	***40-60yrs N=37***	***60+ yrs N=35***	***Significance***
Reminders on schemes	*79%*	*81%*	*84%*	*71%*	0.424
Event Information	*75%*	*86%*	*78%*	*67%*	0.571
Mart Reports	*72%*	*76%*	*62%*	*80%*	0.295
Technical Information	*63%*	*76%*	*68%*	*51%*	0.331
Rural Development	*62%*	*57%*	*70%*	*57%*	0.429

***What would Farmers be interested to hear on Farming Radio*?**

The respondents were then asked what they wanted to hear on farm radio from a menu of options including industry and market information, technical advice, environmental issues, rural development issues, interviews with local farmers and experts, and updates on events and schemes. Information on events and schemes again gets the highest level of response with 72% of respondents interested in this type of information. Farm type only had a significant influence on the farmer's interest when it came to environmental issues, with 79% of the 24 sheep farmer respondents expressing interest compared to 53% of the other respondents. Rural development issues were of interest to 63% of the respondents but this dropped dramatically for dairy farmers, with only 45% of them.

Age was somewhat significant in farmers' interest to hear certain topics on farm radio. Table 4 below shows the relationship between age category and topics of interest for radio listenership. The younger age category of 20-40 years was significantly more interested in technical advice. Older farmers expressed a stronger preference for interviews with local farmers and local experts compared to their younger counterparts though not statistically significant.

Table 4: Type of information of interest to survey respondents by age category (N= 115).

Type of Information on Radio	***All N=115***	***20-40yrs N=33***	***40-60yrs N=47***	***60+ yrs N=35***	***Significance***
Events and scheme deadlines	*72%*	*73%*	*77%*	*66%*	*0.552*
Rural Development	*64%*	*61%*	*64%*	*66%*	*0.907*
Environmental issues	*59%*	*64%*	*62%*	*50%*	*0.456*
Technical information & advice	*56%*	*74%*	*57%*	*35%*	*0.006*
Industry and market information	*53%*	*65%*	*53%*	*41%*	*0.151*
Interviews with local farmers & experts	*48%*	*41%*	*45%*	*59%*	*0.287*

What impact does Farm Radio have on Farmer Knowledge, Attitudes and Practice?

Nine active farmer discussion groups in the county were used to investigate the effects or impact that radio listenership might have on farmer decision making and practices. These included existing 7 beef, 1 sheep and 1 dairy discussion groups. At the end of their regular meetings the members were asked their views about the farm radio programmes and 150 farmers were involved in these discussions.

Listenership

Among group members, listenership varied. There were very few everyday listeners and these few were from the sheep and suckler beef groups and tended to be older members. Most of the members were in the occasional listener category with younger and part-time farmers the less likely to listen. A range of answers was provided in response to the question of why they would listen to the farm radio programmes, including, inter alia, to gain market information for buying or selling livestock; because the topic was interesting; and to get best practice tips at certain times of the year. For those who did not listen, they gave reasons including unsuitable timing; not having the radio tuned to Mid-West; forgetting to tune in; and not being interested. One young beef suckler farmer commented "*I find it depressing, dominated by old farmers and late starters*".

Usefulness of Information

The groups were asked their views on the usefulness of the information provided on the farm radio programmes. Two groups felt that these programmes were very useful for locally relevant and seasonally important information at certain times of the year, for example regarding slurry spreading or spraying of fields. Another group commented that getting daily radio information complemented their other advisory services from Teagasc, consistent with the finding of Misiko and Halm about the integration of information from different channels and Moussa et al about the added value radio can bring to existing extension programmes. Another group felt that the value of the radio programmes was in getting refresher tips in the spring time and getting timely reminders about deadlines for schemes, etc.

Some groups questioned the reliability of the livestock mart reports while others felt that the information was often too general to be useful to them. They suggested that it would be more useful if there were practical examples from the local area and local farmers as guest speakers giving their experience on particular topics.

Does Radio influence Farmer Decision Making and Practices?

The groups were asked if the radio programmes had any effect on decision making at farm level. The dairy group was the least likely to be influenced but this group is extremely well linked into different on-line information sources and most members actively use their smart phones to seek information before making decisions. Among the radio listeners in the beef and sheep discussion groups, there was a strong likelihood that they would use the mart information when making decisions about buying or selling livestock. Many of the farmers said they were influenced at different times of the year with regard to weed control, seasonal tasks, tips for calving and housing and reminders on upcoming scheme deadlines. A number of farmers felt that the influence of the radio programmes was as a reminder and a trigger to find out more information in order to make a decision.

Key personnel involved in making the farm radio programmes perceived value in a number of areas such as making people aware of and interested in attending agricultural events and demonstrations. One advisor presenter commented:

> *"I'll give you one example, we were doing a reseeding demonstration maybe two years ago and it was quite a practical event. We gave it a mention in the evening slots during the week. We had over 500 people to the event coming from all sorts of distances. It just shows the power of the local radio in terms of getting people to be enthusiastic enough to drive 70 or 100 miles for an event".*

The Podcast Experiment

During the face to face farmer survey respondents were asked if podcasts with farming content should be included on the Teagasc website and 75% agreed that they should. A podcast was defined as an online file of a previously recorded show or series and available to download. Two respondents provided comments during the survey including; "*Yes, as a young farmer myself it would be better if I could have any time access to these shows rather than just specific time slots*" or "*yes because you can listen in your own time*".

Each month, Teagasc farm specialists produce a short 2-3 page newsletter with key seasonal messages for different enterprises. They are posted to Teagasc clients and also openly available on the Teagasc website to download. Three main podcasts of the information in the newsletters were recorded and uploaded onto the Teagasc website during a four-month period from September to December 2014 across the dairy, beef and sheep enterprises. The podcasts were recorded and edited using the radio software in Teagasc advisory unit in County Mayo.

In the first two months (September and October) there was no additional promotion of the podcasts other than a note on the newsletters sent out to farmers in the post. In the second two months (November and December), the podcasts were promoted on the Teagasc social media accounts (Facebook and Twitter). The recording of hits and downloads of both the newsletters and podcasts was done at the end of each month by Teagasc IT department using an online website statistics programme called Wusage.

Table 5 below shows the number of downloads of the written newsletter during the September to December period in 2014. It shows a fairly regular level of interest with October as the peak month and December lower.

Table 5: Downloads of Written Advisory Newsletter (PDF file) September–December 2014

	September	October	November	December	Total
Beef	173	214	157	106	650
Dairy	130	225	147	102	604
Sheep	128	142	128	80	478

When the same information was available in podcast form, Table 6 shows the number of downloads. In September and October there was a low uptake among the beef and sheep sector but when the podcasts were promoted on social media, there was a rapid spike in the uptake. However, in the dairy sector, even in September, there was more than double the number of hits on the podcast compared with the written newsletter.

Table 6: Downloads of Advisory Podcasts September – December 2014

	September	October	November	December	Total
Beef	34	53	662	439	1148
Dairy	270	48	536	446	1300
Sheep	15	21	316	435	787

Key informants in this research included personnel from Irish and British farming media who all indicated the growing importance of podcasts especially for younger audiences.

Discussion

This case study of agricultural radio programming in the west of Ireland illustrates that local radio is a very popular medium with a large proportion of the rural and farming population, with farmers listening at different times of the day. The majority are aware of the farming programmes and would listen either occasionally or regularly. The feedback from survey respondents and from discussion groups shows that the listener is very much in command of when, how and why they listen and that they do indeed integrate different interpersonal and mass communication media in terms of their learning and subsequent decision making. The radio farming programmes have helped to make them aware of different initiatives and innovations; they have provided useful information about important issues; and they have stimulated or triggered farmers to attend events or take specific actions.

Local radio is the medium of choice in this rural county with very few survey respondents indicating that they listened to farming programmes on national radio. What local radio programmes appears to offer is information that is specific to the local context whether that be local mart prices, events happening in the locality or interviews with local farmers or local experts. This reinforces the findings of Sulaiman et al (2012) that the value of information transmitted is greatly dependent on its local relevance and whether it can be customised to the

resource situation of local farmers. What the case study also illustrates in the active nature of radio listenership with clear preferences for different types of information between different groups of farmers.

Age emerges as a critical factor in radio listenership with older farmers displaying a preference for the traditional form of listenership whereas younger farmers were less interested showing that the motivation to use any mass medium is also affected by how much an individual relies on it and how well it satisfies her or his need. Younger farmers were more attracted to digital media including podcasts or information they could access on their smart phones. The response to the podcasting experiment highlights the preference that most people have for listening rather than reading information and the growing importance of this medium in the toolbox of the extension agent and agency.

In conclusion, this case study supports the contention from previous studies (Sulaiman et al, 2012; Moussa et al, 2011; Misiko and Halm, 2015) that radio still has an important role to play in extension programming, not on its own but integrated with a range of other communication strategies. Radio appears to have particular appeal to older farmers and it may have unrealised potential to reach the cohort of farmers who are less engaged with advisory services and sometimes considered as 'hard-to-reach'. There are important lessons for extension agents and agencies in Ireland and in other countries to consider when developing extension programmes and communications strategies. There is considerable scope with podcasts and local radio to reach a large audience with messages that are locally and contextually relevant and to engage local actors in this process.

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