

Management, technology and work in commercial broadcasting, c. 1979–98

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This article explores the relationship between management strategy, technological change and collective bargaining in the British commercial television industry. The demanning and deskilling potential of digital production technologies remained largely untapped until the second half of the 1980s. The termination of national collective bargaining that had regulated minimum crewing levels was the watershed in terms of work organisation.

Despite the huge academic interest in the meaning of the media industries and the importance of consumption in the formation of, for instance, popular culture and national identity, comparatively little has been written about the nature of work and employment in broadcasting (McRobbie 1996). The emerging literature on management and labour in broadcasting employment has focused on the disintegration of internal labour markets and the rapid casualisation of employment that has dominated the industry in the last decade. Our concern is to explore the dynamic between corporate strategy, work organisation and shopfloor trade unionism in commercial television over the last twenty years. In particular, we will be concerned with Scottish Television (STV) which has transformed itself from a minor regional broadcaster to an aggressively acquisitive media conglomerate. Drawing on interviews with STV production staff and managers and internal documents we trace the development of corporate strategy and work organisation as STV shifted from being a cultural bureaucracy to something akin to the 'flexible firm'.

Critics of the radical changes in the structure and management of the UK television industry point to the loss of programme quality and innovation and to the pervasive casualisation of employment in the sector. Advocates, on the other hand, depict an industry which is both flexible and specialised, populated by freewheeling, imaginative cultural entrepreneurs linking a vibrant archipelago of production and ancillary services to the broadcasters (Barnatt and Starkey 1994; Starkey and Barnatt 1997; Shapiro et al. 1992). Both analyses are fatally flawed: the first from a myopic nostalgia

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for a lost golden age of broadcasting free from commercial considerations and, indeed, from management per se. From this perspective, the ongoing marketisation of the BBC is not so much a radical departure as an acceleration of deep-seated political pressures on the Corporation's management in train through the 1970s (Burns 1977). Equally, the profound shifts in management practices and employment patterns in commercial television which gathered pace from the mid-1980s onwards were prefigured by, for instance, the development of more rigorous programme budget controls and local skirmishes over new technology. The second with its vision of a capuccino capitalism, begins from a mythical utopian *present* in which insecurity and enhanced corporate power are wholly absent. That the BBC and the commercial television network commission more programming through outsourcing is undeniable. But the rapid growth of production companies and facilities houses providing programming and specialist services does not signify the emergence of a form of flexible specialisation. The broadcasting companies commissioning role is *not* synonymous with that of a brokerage agency, the hub of a creative network. Very few production companies are also the vehicles for 'talent' that gives them significant bargaining power but these are represented as *typical* of the sector as a whole. Nor can the *micro*-level categories of the 'flexible firm' be conflated with the *meso*-level terms of 'flexible specialisation' without a collapse of analytical rigour. Indeed, the experience of broadcasting casts further doubt on the rigour of flexible specialisation as an analytical category. Implicit in depictions of British broadcasting as a nascent form of flexible specialisation is a notion of power which recalls a naive pluralism (McLennan 1989).

That is, any tendency for the major broadcasters to abuse their market might is naturally countered by their dependence on the vitality of the creative networks which could generate counterbalancing coalitions. To accept that globalisation and outsourcing has dramatically altered the political economy of broadcasting is not, however, to accept that the weakness of small media firms becomes a collective strength. Both flaws derive from the same source. By focusing on the dynamics of the sector as a whole there is little consideration of the strategic choices of individual firms or the dynamics of workplace change. We begin by outlining the principal features of work organisation and collective bargaining in the twenty years before 1985. The long dominance of complex, unreliable electrical-mechanical technologies and the slow introduction of digital alternatives made acceptance of a highly regulated labour process a rational choice for television management. No less important, the industry regulator maintained regional monopolies insulated from competition for advertising revenues. Satellite broadcasting and increasingly competitive franchise auctions exposed the commercial network to severe competition for the first time. The second section traces the collapse of national collective bargaining and the beginnings of a management assault on the regulated labour process to release the latent potential of digital technologies to deliver significant efficiency gains and to redraw the balance of power in the workplace. Management control of the labour process became an increasingly important competitive weapon. For STV, extending control over the labour process was both essential to profitability and to the legitimisation of a new managerial regime which developed from the mid-1980s.

Management and labour in a regulated environment

It is one of the achievements of British broadcasting that programmes are regarded as handmade products produced by craftsmen, and not as articles of mass production (Annan Report 1977, p. 31).

Through to the mid-1980s a stable competitive environment and incremental changes in production technology meshed with a highly regulated form of labour process. Regulation centred on a comprehensive set of working rules that specified tight conditions for individual tasks and patterns of production crewing. National work rules were inescapable minima: local negotiations and disputes improved terms and

conditions for labour at specific stations. Industrial conflicts were about the boundaries and contents of national contracts, not their existence.

For station managements, labour contracts took production efficiency out of the competitive equation: work organisation was not a prime factor in competitiveness or profitability. Management acceptance, however rhetorically grudging, of a national settlement on work organisation also reflected their reliance on highly skilled labour. Equipment was both fragile and unreliable, requiring constant monitoring and skilled manual intervention to maintain production. Television cameras, for example, were powered by delicate valves and as a result of the cumulative impact of constant, tiny adjustments to their functioning, were often highly idiosyncratic. Cameras had to be defocused the instant the shot was no longer necessary to avoid superimposing a residual image on the tube and the next shot. Only experienced, highly skilled engineers could maintain this temperamental capital equipment – ‘continual tweaking, much laying on of hands’ (similarly, Jacobs 1983, p. 132). Camera operators were no less skilled: fragile film had to be ‘laced’ through complex mechanical roller systems and effective shots required mastery of up to six focus levers, often involving shifting a pivot arm, wheel and twist grip simultaneously. To this extraordinary dexterity was added the necessity of shot composition, of maintaining the mass, line, tone and depth of the image: ‘with practice, the cameraman will find that he can change to another lens, reframe the shot, and refocus in less than a second’ (Jones 1972, p. 31). Just as cameras ‘had to be heated up’ so, a veteran of the first decade of commercial television recalled, the camera operator also ‘had to heat up, to get his eye in’ (Interview, former camera operator D).

Each camera had three or four tubes depending on the standard you were working to. To register the images you had magnetic yokes and you had to be able to shift the image that was being scanned up, down, sideways, to alter the intensity of it, to adjust the scanning beam, the focus, the intensity, the current within the read of beam. You had so many controls and perhaps fifty parameters to control to get pictures. It was a bit of black art. Some people were better than others at lining (shots) up, and certain individuals had reputations as being very good at getting pictures out of cameras – there was an element of artistry involved.

Camera rosters were predicated on the assumption that minor technical failures would inevitably disrupt production: ‘if you wanted to change tapes, it was “go and have a cup of tea while the assistant changes the tape”’. Sound engineering, similarly, involved running adjustments to recording equipment with every change of tape spool (Interview, sound engineer). Downtime averaged one-third of production time (Interview, programme accountant). One experienced vision mixer recalled that producing an acceptable image from ‘a two inch quadraplexed video machine was a daily piece of magic’. The complexity of individual tasks was overlaid by a need for collective improvisation based on shared experience. Camera crews were ordered in a strict hierarchy, primarily based on seniority, and regulated exclusively by the workgroup. Consider the individual dexterity and group coordination required in the operation of a pedestal camera. Although power-operated cranes were introduced from the early 1960s, fine movements required the senior camera operator to remain in focus, while aligning shots through three dimensions, all while seated on a moving ‘dolly’. The senior operator signalled to the two assistants with a series of rapid, subtle finger signals from the hand guiding the planing handle. One camera operator recalled that during such delicate operations the workgroup relied on an ‘almost telepathic’ understanding of the image sought by the senior operator: ‘the old dollies were heavy, bulky – awkward to move. But you had to *glide* them across the floor to avoid the slightest bump. All the time you were adjusting the dolly you had to just *know* what shot the cameraman wanted *then* and what he wanted next’. Graduating from second to first assistant and finally senior operator was a slow experiential apprenticeship in collective coordination as much as a mastery of individual tasks. During breaks in production or on less demanding shots, younger camera operators would be temporarily ‘promoted’ so that they gradually acquired experience in coordinating crew while they extended their range of studio experience. This crucial part of skill development was wholly controlled by the trade group and,

as for the other broadcasting technician trades, was accompanied by socialisation into the norms of the craft.

Production staff continued to define themselves in terms of their trade rather than as 'broadcasters' or employees of a specific company. Occupational identity remained defined by generic competences, tools, and reference to a wider craft community that stretched beyond the studio floor:

I was an electrician who *happened* to be working for a telly company. Even after twenty-five years with STV I still thought that I could have went back to (construction) contracting (Interview, former electrician A).

Self-regulation, defending extensive job controls, and a refusal to brook any managerial intervention into the communal spaces which constituted the broadcasting labour process were as much the hallmarks of the technical trades as they were in the region's heavy industries. The management of programme making both accepted and confirmed the separation of the aesthetic and technical spheres of production. Each camera operator followed an individualised script which detailed his position and moves for each shot. If experience and improvisation were the hallmarks of the broadcasting technician then camera operators were judged by their ability to adhere strictly to the producer's script. The camera operators' contribution to production was not aesthetic but rather a more restricted technical conformity. And, like other broadcasting technicians, the camera operator's primary identity was that of a member of a wider craft community.

Of course we wanted the show to go well, but we had nothing to do with deciding what the shots were. The only time we volunteered a suggestion was if a shot was *impractical*' (Interview, former camera operator B).

The labour process was articulated around a sequence of tasks conducted by distinct craft groups augmented by a series of ancillary occupations such as stage hands and dressers.

Only carpenters could wield saws and hammers, only painters could paint sets. Stage hands were restricted to fetching and carrying: as a stage hand you would not *dare* look at a hammer or paint brush.

Even a small set couldn't be nailed together by anyone else but a joiner and couldn't be pulled apart by anybody else but a joiner. . . . A stage hand could put a lamp on a table but then an electrician would put the bulb in it (Interview, former stage hand B).

Equally, no tradesman would consider shifting a prop or delivering materials or spare parts. In many cases, there was a technical basis to restrictive job allocations that were not derived solely from union job controls. 'An electrician would not touch a sound cable, a sound guy would not touch an electrician's cable or a camera cable, a cameraman would not touch a sound cable or an electrician's cable,' for two reasons. First, these technologies were complex and fragile. Multi-core camera cables were, for example, coupled by 36 fine pins: to damage a single pin was to risk an expensive break in production or broadcast. Second, vital electrical components, such as high voltage bulbs, had a life of less than one hour making it efficient to have an electrician on constant stand-by. Beneath the apochrypal tales of electrician's job controls lie an unspoken awareness and grudging respect for the electricians' robust defence of their job territories.

It got to the ridiculous stage. There is the story of a chap who bumped into a lamp stand and the lamp was falling over so he grabbed it before it fell and put it back up. That caused major problems with the electricians – not because he bumped into it, but because he grabbed it and put it back up (Interview, former stage hand B).

In this setting, it was entirely rational for management to collude with the unions in the construction and maintenance of balkanised internal labour markets and to cede significant control over the labour process to skilled labour (Brown 1972: 55–7). 'You *always* bought your way out of any problem – the bucks were there. It was a corrupt form of profit-sharing, recalled a former STV Director. In a time-sensitive setting, any small group could halt production instantly:

every week-end the outside broadcast was in jeopardy because the riggers might be a problem, or the electricians, or whatever. The *possibility* of industrial relations problems was accepted as a fact of life (Interview, former sound supervisor).

Through the 1970s small-scale conflicts confirmed the balance of power in the workplace firmly in the unions' favor (Interview, STV Manager).

Management made a Faustian pact with the unions: we wouldn't push too hard. If we were threatened with blank screens we had no choice: we *had* to back down. It was all a big boys' game. We all knew what was going on: they had us over a barrel. Problems only arose by accident.

Programming, for management, was the deployment of nationally negotiated crews rather than the movement of individuals according to production priorities. Controlling labour costs was not vital either to the station's profitability or to the appraisal of management performance. Over-crewing was inherent in the regulated environment 'but at that time management liked that because they didn't have to think about anything': 'the management building blocks were really big. It was a case of programme, crew, money, that's fine – that's that sorted out, dead easy'. Similarly, major capital costs were fixed by the industry regulator that specified the range of recording and transmission equipment necessary to secure a regional licence.

Inside STV, shop stewards, particularly electricians who had moved into broadcasting from shipbuilding or civil engineering, developed extensive job controls as their main bargaining weapon (Herron 1975). The increasingly stable employment offered in commercial television from the mid-1960s onwards was the basis for the quiescence of the STV workforce, their readiness to 'accept poverty in security'. Economic militancy, not quiescence, was the hallmark of collective bargaining in shipbuilding. Drawing on their experience of guerilla bargaining in the shipyards, the electricians entering broadcasting from heavy industry turned poor management organisation to their advantage.

STV had always had bad management. *Always*. Bad managers can be good for the workers if they are organised. Any time we had to wait (for materials or other trade groups) we claimed an allowance – the worse the manager, the better the allowances. Plus, we got the chance to work overtime. That's what we tried to do: to build up the agreements so that the worker would not be punished for bad management (Interview, former electrician C).

In shipbuilding, work was paid strictly by output. Regulated by comprehensive price lists specifying every conceivable variation in working conditions, informal bargaining over allowances for poor production organisation was a defining characteristic of shipyard employment. Nor were shop stewards the primary vehicle for this form of collective bargaining. Rather, every craft gang assumed responsibility for protecting and enhancing collective norms of the effort bargain. Embedding a similarly aggressive sectionalism among STV's technicians was the electricians' singular contribution to the company's industrial relations. As the Annan Report noted in 1977 industrial relations inside STV compared unfavourably with other network companies. It was with some weariness and resignation that the ITV companies' collective submission to the Annan Committee concluded that save for programme making itself, industrial relations overwhelmed station managements. Inside STV Annan 'detected the swirling undercurrents of animosity' beyond the adversarial bargaining characteristic of the industry as a whole (Annan 1977, par. 27.19). The highly integrated, sequential and time-sensitive work flows of broadcasting and tight craft identities combined to provide enormous bargaining power for the industry's seven unions. In a workplace in which job boundaries were scrupulously monitored and carefully observed, every group of workers wielded enormous bargaining power (Potter 1990, pp. 21–2). 'For the unions', one former ACTT activist recalled, 'it was Dick Turpin time: "Stand and Deliver" '.

Through the late 1970s the growing divergence in the scale of operations of the network companies began to shift management attention to the local level. Although the industry's national agreement remained paramount it was increasingly augmented by locally negotiated appendices. It was a short step from this dual system of national and local regulation towards the process of deregulation which began in

the early 1980s and which reflected the strategic choices of individual companies 'at the expense of their common interests' (Seglow 1978, p. 252). The transition was marked by local settlements which introduced new technologies without altering total crewing levels, earnings or work practices. Accordingly, operational management introduced process innovations to enhance programme quality not to shift the terms of the effort bargain or redraw the frontier of control.

Before the mid-1980s technical change in broadcasting had been dominated by a series of incremental innovations in specific technologies. Radio cameras produced unreliable signals and were used in conjunction with conventional wired equipment; automated control of sound levels continued to be checked by experienced engineers. For drama productions, film was neither rapidly nor wholly displaced by video tape: film gave the producer much greater control over the aesthetic process on the studio floor and tape editing suites remained relatively inflexible, expensive, and with limited availability. For these reasons video-tape was often used in exactly the same way as film with cameras closely following individual scripts with any deviations decided by the director (Alvarado and Buscombe 1978, pp. 38–9, 41). The piecemeal process of technical change involved the splicing of temperamental mechanical to unreliable and unproven digital technologies. The result of this complex and protracted transition from mechanical to digital process technologies was twofold. First, mechanical skills remained of the first importance in broadcasting. Second, that new technologies were absorbed into the existing craft-based division of labour and appropriated by established trade groups.

There was some flexibility on the highly regulated commercial television studio floor. However, any managerial discretion to reorder production schedules 'came with a price tag attached' (Interview former STV Director). Minor changes to working time arrangements were possible but attracted significant premium payments (more generally, see Campling 1992, pp. 207–11). For technical groups, production imperatives came second to the maintenance of the integrity of collective agreements and custom and practice. Network managers were compelled to accept their relative powerlessness to circumvent custom and practice locally or to confront the industry's national agreement. Inside STV, producers worked with the grain of custom and practice. Crews were rewarded by additional overtime with little legitimacy in terms of programming needs. On such shifts 'it was a case of get a pager, go and do some shopping'. Staff salaries were treated as fixed costs for the station as a whole rather than attributed to specific programmes in any meaningful way. The complex system of cross-subsidisation through the ITV network and inside each company focussed management on the total cost of output rather than that of any particular programme (Lury 1993, pp. 142–3). In a fast-growing medium, the managers of a regional monopolist such as STV had considerable scope to define their role in terms of innovative programme-making, maintaining job security and profitability (Interview, former Director of Personnel).

Up to the mid-eighties it was a combination of making programmes and making money. Towards the end of the eighties it was driven solely by the bottom-line: making programmes was a necessary evil – a *cost*, no more than that.

Station managements had no method of costing production: accounting procedures systematically masked under-utilised resources. In parallel, personnel slack was physically concealed by functional managers who assigned technicians without a productive role to discreet housekeeping activities safely hidden from managerial view. Front line management actively sustained custom and practice in order to maintain production and their limited discretion in work organisation issues. Managerial authority on the studio floor was a blend of acknowledged professional competence and adherence to the norms of craft administration.

The brave new world of flexible broadcasting

We are moving determinedly away from the old worker/boss attitudes which were allowed for too long to disfigure independent television and bring us into disrepute. That age of aggravation

is gone and we will work to ensure that the negative features do not recur at Scottish Television (STV 1991, p. 203).

STV is one of a group of large regional companies which comprises a second tier of commercial broadcasters, behind Carlton, Central, and Granada. Network television companies receive approximately 95 per cent of their income from advertising (Collins et al. 1988; Nossiter 1991, p. 102). Of the regional television companies, STV was disadvantaged in terms of advertising revenues, being forced to offer lower rates and heavy discounts for test products (Clarke and Bradford 1991, p. 24). In turn, this placed real pressures on the balance between STV's cost and revenue structures. 'Management look upon TV programmes as the bits between the adverts. The adverts make the money and the bit between the adverts is the bit they want to do as cheaply as possible to still be able to sell the advertising space to make the money':

We'll treat this as a factory, drive it like a factory: a medium for making money (Interview, STV Producer C).

A defining feature of industrial relations in the 1980s was the managerial drive to loosen, if not eliminate, job controls embodied in formal contracts and in custom and practice (Daniel 1987, p. 166; Edwards 1987, p. 123). The drive to reshape the labour process in manufacturing was paralleled in broadcasting. From the early 1980s commercial television companies began to pursue a range of strategies to break down national collective bargaining and dislodge the national crew minima which restricted the wholesale introduction of new production technologies (Ursell 1998, p. 136). The industry's early experiences of video cameras for news gathering (ENG) were marked by extensive local negotiations which limited the impact of new technology on working practices and earnings (Clark et al. 1984; McLoughlin and Clark 1988, pp. 64–6). By the end of the decade, however, national bargaining had collapsed under pressure of company level bargaining (*FTT and BETA NEWS*, October 1991). New technology was important not just because of its own deskilling and demanning potential but also it compelled management to review the technical necessity for conventional large crews. Network managers identified large crews as the result of union bargaining strength rather than technical necessity (Sparks, 1989, p. 26). In broadcasting, as in the newspaper sector, the radical restructuring of work processes was triggered by technological change in both product and process and the deregulation of the market (Noon 1993). Sectoral associations and the transfer of executive staff between the commercial broadcasting companies were important conduits for the consolidation of shared knowledge of the potential of new technology and industrial relations strategies (Smith et al. 1990). The key to unlocking the potential of new technology was challenging the sector's historic settlement with the technicians' trade unions. Where television companies such as Tyne Tees and LWT chose confrontation, STV's strategy was to dismantle the agreements regulating working practices and working time through negotiation. The company's choice of conventional bargaining channels was in keeping with the strategies of the majority of the independent broadcasting companies and, indeed, of British management more generally (Daniel 1987, p. 177; McKinlay and Taylor 1994). The backdrop to the formal negotiation process was a lengthy war of manoeuvre on the studio floor. Increasingly, management attempted to renegotiate local agreements and alter the terms of custom and practice: 'we were testing the limits all the time (Interview, former Director of Facilities). STV's use of external contractors was regulated by an agreement that restricted their choice to other network companies. All rented equipment had to be operated by contractors supervised by an equal number of STV technicians. There was no economic incentive to outsource any aspect of production. This agreement was moderated so that STV staff worked the rented equipment under the guidance of contractors, but ACTT blocked any move toward hiring equipment without restriction. The technicians' most potent weapon was to work strictly to agreements, eschewing even the most lucrative exception, a tactic management regarded as 'worse than a strike'. Such low

cost industrial action proved highly effective in defending the boundaries of local agreements and custom and practice.

STV's 'Way Ahead' negotiations began in 1986 seeking greater flexibility and efficiency with labour deployment derived from operational requirements not national agreements. STV's objectives were not defined by front-line managers and producers. Indeed, national agreements prohibited STV executives from discussing their bargaining agenda with section managers (Way Ahead, 11 September 1986). From the first, the ACTT shop stewards' strategy was geared toward damage limitation. One lay union negotiator accepted that changes in working practices were 'absolutely inevitable' and the objective was not resistance but 'to try to get it through with the least possible mayhem' (Interview, former ACTT shop Steward). Initially, STV management suggested the elimination of the concept of the minimum crew with that of a smaller, 'basic' crew. The 'basic' crew was a comparatively modest proposal, far removed from individual rostering (Way Ahead, 10 December 1986). Reducing existing crewing levels would, STV managers insisted, be exceptional and would be negotiated with stewards. The ACTT stewards were highly sceptical that the principle of mutuality in work organisation would survive a war of attrition between producers and stewards. ACTT stewards recognised that they could not realistically defend the 'minimum' crew agreement and instead sought to install mutuality and contingency rules to govern adjustments to crewing. For STV management, to accept the principle that changes in crewing levels would be decided through negotiation on the studio floor would be to jettison restrictive agreements only to become entangled in a cumbersome governance process where they could be 'ambushed on a daily basis'. STV refused to accept any restriction on management decision-making according to operational needs. Crewing was not negotiable but a subject solely for managerial assessment. There was little negotiation about specific tasks, save for those – such as simple cable tracking – which management regarded as emblematic of gross inefficiencies sustained only by union job controls and which hindered STV's competitiveness.

This does not mean that work will be under-resourced but nor should it mean that crewing is maintained by some artificial ruling. The intention is to allow Heads of Sections to deploy staff where and when there is work to be done. We believe that numerous opportunities are available to use; the proposed flexibility will help us to react to these opportunities in an effective manner (Way Ahead, 3 September 1987).

Through 1987 STV management continued to maximise management's room for manoeuvre in work reorganisation. Management carefully avoided specifying tasks, trades, or time budgets for specific operations. The ACTT stewards had no bargaining position left to defend. The only sop STV management offered was that implementation of new working practices would be monitored by a joint working party, albeit one which had no power to negotiate, rescind, or even endorse specific changes (Way Ahead, 9 October 1987). Whatever the original intention, by mid-1987 STV's management were simply maintaining the facade of meaningful collective bargaining while they waited to see just how far the balance of power was shifting to their advantage. Inside the commercial television network pressure from the major stations to terminate the national agreement was gathering force. Despite pressure from companies such as STV, the employers' association was unable to sustain its united front. The withdrawal of Tyne Tees and TSW from national bargaining spelt the end of a cohesive employers' strategy for the industry as a whole (Campling 1992, pp. 70–2). Equally, the push from below by individual television companies had posed major strategic and structural questions for the broadcasting unions. Nationally, the key technicians' union, ACTT was in disarray, its highly centralised structure was too inflexible to cope with the move towards decentralised bargaining. This was compounded by a serious loss of members and officials disaffected by the executive's intransigent immobilism and the impending merger with the union organising ancillary groups, BETA. So deep was the disaffection in STV that a short-lived breakaway union gained a foothold among the station's technicians. Inside BECTU, the merged

broadcasting union representing technical, ancillary and administrative staff, a chasm opened between the executive and lay activists who insisted on their complete autonomy in local negotiations, completely rejecting any bargaining role for union officials. For BECTU, the defining characteristic of the last decade has been the rebuilding of the union's role and credibility inside companies such as STV.

These major shifts in the landscape of collective bargaining were paralleled by changes in the strategy and structure of STV which placed control over the labour process as the company's core short-term objective. The 'Way Ahead' negotiations ceased abruptly in spring 1988 as management concluded that collective bargaining was no longer effective either in delivering radical change quickly or legitimising the demolition of the company's internal labour market structures. 'Tight management of labour costs', Gus McDonald, STV's Managing Director, concluded, 'remains the highest priority as the commissioning of programmes is increasingly decided by the ITV Network Centre on the basis of price' (STV, Annual Report 1993). STV's executive management concluded that if they did not launch a wholesale restructuring of the labour process they would be ripe for take-over by a more aggressively managed company. Reshaping the employment relationship and work organisation was crucial both to ensuring the company's independence in the short-term and to the medium-term goal of emerging as a regional media conglomerate embracing both print and broadcasting while constructing joint ventures with satellite broadcasters.

During the early 1980s major changes in the political economy of broadcasting – principally the emergence of satellite broadcasting and deregulation – and radical technological change combined to undermine the established settlement between capital and labour. Technological change involved a range of digital machinery which completely superseded the electrical-mechanical equipment which had dominated the industry for decades. These digital technologies held the promise of displacing labour, eliminating troublesome craft skills, and improving quality. Craft skills were unnecessary for the successful operation and maintenance of comparatively light, mobile 'chimpanzee cameras' which produced high quality images by 'point and press' operation, not the intricate framing and dextrous handling of sensitive, mechanical cameras (Gandy 1991, pp. 1–2). This opened up new possibilities for an aggressive management driven by the bottom-line (Interview, former STV video-editor):

That's fine, we could get any old monkey to do this, we could bring ten granders in straight from school, as long as they know what button to push . . . we'll be allright.

But if displacing labour and deskilling is one outcome of technological change then it has also wrought a fundamental shift in the tasks and occupational identity of broadcasting technicians. Computerised technologies have largely eliminated the craft skills of the engineer. Similarly, while there is little need for the highly refined conceptual and manual skills of the camera operator digitalisation has expanded the range of aesthetic tasks performed by camera operators. Freed from the inherent limitations of mechanical framing and focussing, a minority of camera operators are now active players in creative decision-making previously the sole preserve of the producer/director. There has been, following Lash and Urry (1994: 122), a shift towards a more reflexive labour process, a partial – typically episodic – integration of aesthetic conception and technical execution. This is particularly true in outside broadcasting where smaller crews and time constraints blur the line between responsibility for traditional camera tasks and overall production decisions (Interview, Producer B; Schlessinger 1987, p. 161).

Where you're trying to cover a multi-camera match the on-screen producer will ask for lots of graphics to be on-screen, video-tape run-ins, etc., so (camera operators) become more like system engineers than camera line-up people as they were. So the job *has* changed – they no longer concentrate on a narrow range of technology.

Equally important, video shifted the focus of programme-making from labour-intensive, highly choreographed, expensive production to post-production mixing rooms staffed by a producer and two or three assistants (Varlaam et al. 1990, p. 44). From the late-1970s manual editing based on a lengthy process of cutting and splicing film

was gradually displaced by the immediacy of video-cassettes and, from the late 1980s digital tape. The producer of a syndicated children's show explained that 'the editing is the cheapest part of the process' (Interview, Producer A),

'... If you are in a studio and are using 7 cameras, a crane, 4 mini cameras, a couple of underwater cameras. ... The studio crew was probably in excess of 40 people, plus the studio itself, and all the power and so on.'

During editing even poor camerawork can be disguised and conventional images refashioned: 'any dodgy object – no problem, we can paint it out'. Digitalisation permits non-linear video editing and the integration of a number of previously discrete skills and functions, such as editor, graphic designer and sound mixer. Successive innovations in materials have complemented the radical improvements in production technology. Digital tape is now capable of achieving high-grade filmic quality at a fraction of the cost of conventional film stock. Each frame is automatically calibrated for density and shading, permitting yet more scope to improve or fundamentally alter the composition of the image in the editing suite. The growing sophistication of computerised image control has overlaid the role of the editor with that of the computer operator, opening up the role to individuals without conventional media training. Most importantly, the expanded capabilities of digital editing have significantly altered the division of labour on the studio floor:

The basic process is the same but you are shifting the emphasis into post-production. You shoot things differently because the editing is available to you and it's faster and cheaper and everything is budget led. Post-production equipment is so much more advanced: in the early days it was cut and mix and that was about it, but now you can do so many other things, electronically alter things frame by frame (Interview, Producer B).

It is here that new technology has had its greatest impact on the nature of the production process. Electrical-mechanical film crews followed pre-ordained patterns while lighter, more robust digital cameras allow much greater flexibility for operators and wider choice for post-production image mixing. Rehearsals with mechanical cameras allowed operators to make their instructions more specific. Digital camera crews, on the other hand, use rehearsals not to restrict their freedom of movement but to become engaged in the aesthetic production process much more than their predecessors.

Less obvious changes to ancillary systems on the studio floor also had a significant cumulative effect on crewing and the labour process. Major improvements in the reliability and performance of radio microphones, for instance, from the mid-1980s eliminated the 'boom' sound-technician completely from some programmes and permitted the director to pin the mike onto interviewees. Saturated lighting rigs provide even illumination rather than relying solely on the expert positioning and repositioning of incandescent lights by studio craftsmen (Hazelkorn 1996, p. 32; *Invision*, October 1986). Nevertheless, outside of the simplest studio presentations, STV producers choose not to use only computer controlled lighting but to use the technology to augment technician skill, to automate routine lighting in order to permit technicians to concentrate on fine judgments about shade and texture.

By the late 1980s, against a background of successive franchise bids, individual station managements had turned decisively towards the labour process as an emerging competitive weapon. In essence, stations converged on a single model of organisation: a core of experienced staff drawing on freelance production labour. This new production regime is conventionally contrasted with the regulated past: flexibility and casual employment have replaced rigidity and joint regulation. While we endorse this stark contrast in many respects it neglects two crucial elements. First, the transition from a creative bureaucracy to casualised production was a lengthy process that followed a quite different trajectory in different television companies. In STV, management ruthlessly dismantled the 'old order' only after it became clear that they were slipping behind other network companies in terms of restructuring the labour process. Equally, STV's use of conventional collective bargaining both to

reinforce managerial prerogative and legitimise new work regimes was inadequate. The transition also involved the introduction of new managerial techniques to monitor the production process and the construction of 'producer choice' as a new ideology to legitimise the destruction of the established internal labour market.

A key development in British industry has been the installation of accounting procedures designed to increase the visibility of labour, materials, and machine costs. Widening the scope of lower level managers' responsibilities has been paralleled by an even greater emphasis on ensuring their accountability (Kinnie 1989; Armstrong et al. 1996). In manufacturing, front-line managers are the focal point of this new form of corporate scrutiny and pressure. In broadcasting, the analogous group is the producers who are the budget holders for particular programmes. STV's structures and accounting procedures reflected this pattern: production and technical services were designated as cost centres whose single purpose was, by definition, to reduce the cost per programme minute (*Stage Screen and Radio*, June 1995). The labour component of programme budgets was formerly derived from national crewing standards and wage rates. From the mid-1980s rudimentary rate-cards were developed to reflect the total costs of programmes rather than only the variable costs. By the early 1990s STV had finalised a total costing regime

where we measure everything in minute detail. The budget drives everything, the budget defines what programme management is all about (Interview, Technical Controller, STV).

By designating discrete functions and programmes as cost centres broadcasting companies such as STV transformed the social relationships of production from collegiality and collective bargaining to quasi-market transactions. Producers were now under pressure not just to remain within budgets but to actively pursue ways of reducing production costs. Redundancies were aggressively pushed through by producers who were redefined in the process as being unambiguously part of management. Employees were 'tapped on the shoulder' and shown their 'own personalised packages': 'Managers were like time-share salesmen: "You've got to buy it *now*, because that's the price today and *only* today' (Interview, former STV sound-engineer).

Management control systems were radically extended in parallel with the attempt to negotiate new working practices in the late 1980s. In particular, producer choice allowed each employee's productive time to be charged to specific programmes and their downtime to be closely monitored and compared. Combined with producer choice, downtime measurement was a powerful material and ideological method of individualising the selection of individuals for redundancy.

When it came to whose shoulder to tap on, the managers were looking at the individual downtime print-outs.

Ideologically, allocation to programmes and downtime were measures of producers' ratings of individual crew members, a systematic disintegration of the communities of practice which identified individuals with specific skills and programmes. The measurement of productive and unproductive time also contained an important ideological dimension: a form of peer assessment and meritocracy. Before the restructuring of the employment relationship in the second half of the 1980s, seniority and appraisals of skill had been an issue solely for the craft or workgroup, immune from any managerial scrutiny or intervention. Producer choice effectively appropriated this principle for managerial purposes. Redundancy was defined as an individual rather than a collective issue to be mediated by seniority rules or collective bargaining. This, in turn, raised profound questions about the value of trade union membership, particularly given the redundancy of ACTT's executive-led bargaining strategy and the local unpopularity of merger with the non-skilled workers' union. On the studio floor, the union's enormous structural weakness was compounded by the resonance of management's ideological onslaught on established demarcation lines among production grades. The idea of a basic crew structure was replaced with that of individual rostering, labour deployment decided by operational needs rather than

derived from national collective agreements. One indicator of the extent of these changes was that STV increased its proportion of freelance and contract staff from 12.8 per cent to 45.6 per cent between 1989 and 1994 (Saundry 1996, p. 9).

The brute fact of casualisation in British broadcasting is inescapable. But this sectoral judgement tells us little about the impact of employment insecurity and new managerial practices in specific firms. Inside STV, temporary staff are termed 'ten granders', their salary, or as 'nineteen monthers', their normal tenure with the company. The casualisation of broadcasting employment has placed programme producers as key figures in remaking work organisation and as brokers straddling the boundary between internal and external labour markets. The producer now plays an ambiguous role as both manager and creator, no longer bound by reciprocal ties of collegiality embedded in a common internal labour market (Di Maggio 1977; Ursell 1997, p. 153). STV producers have developed several new coping mechanisms intended to offset the conflict between tight budgetary control and effective production. Faced with budgetary controls, STV producers have injected programme quality as a vital term in negotiations with accountants whilst elevating the commercial over the aesthetic. Equally, producers have constructed a black market on which they 'trade' production services to lessen the effect of financial controls on production. Producers have also emerged as key gate-keepers between 'core' and 'peripheral' workforces, the hubs of networks which link production personnel. Producers play at the interstices of the formal resource planning system and the edge of the company's internal labour market. 'It's partly about being around, who is who and all that kind of thing':

(Internally) I make it my business to keep track of who is doing what, who has been retraining in a new technique or who is taking an interest in a certain thing. But I also try to keep track of the freelance market as well and what the jungle drums are saying: "this guy is quite good and has worked on this and that" (Interview, STV Producer B).

Producers are not impotent in the firm's internal markets. Resource management embraces the maximum utilisation of capital assets and established staff. The time accounting regimes initially installed to select candidates for redundancy have now become a powerful management tool to increase studio, equipment, and labour utilisation. Coupled with production contracts with SKY accommodation specifically designed to use gaps in studio and crew usage, levels of labour utilisation have been raised to 85 per cent. But these utilisation levels are only possible with the co-operation of producers, and it is this necessity which provides the material basis for the *negotiation* of commercial, aesthetic and managerial agendas. Only after the internal labour pool has been fully used can producers draw on the freelance market. Producer choice limits the extent to which resource managers can impose particular crew members. 'We'll do a dance', remarked one producer, 'we both know I'm going to end up using Mr. X, but I'll play hard to get if I want to make sure I'm owed a favour in the future'. Beneath the gloomy image of the 'casual' workforce, in other words, alternative networks constructed by workers and mediated by producers, are emerging which cut against the individualisation of casual employment (For construction, see Bressnen et al. 1985; Nisbet 1996).

The broadcasting trade unions were decimated by the rapid changes of 1985–95. The job controls established over almost three decades were obliterated. Process innovations were no longer digital islands in a mechanical sea but by the mid-1980s a complete system (See Table 1). Whereas the broadcasting unions had used their control over the entire production process to appropriate specific new technologies, the modular nature of digitalisation rendered this union control strategy obsolete. Similarly, the unions' control of entry to and movement within technical grades was swept away by the floodtide of casualisation. Broadcasting technicians were no longer shielded by substantive national agreements or able to exert control through occupation of strategic points of production. Coupled with the assault on internal labour markets, the collapse of formal and informal bargaining power was complete. There was no collective regulation of redundancy nor were workgroups able to

Table 1: *Technology, Strategy and Work Organisation*

<i>Technology</i>	<i>Management</i>	<i>Work Organisation</i>	<i>Production Administration</i>	<i>Union Technology Strategy</i>
Electro-Mechanical	Constrained	Sequential, Fragmented	Craft Administration	Capture and Control
Transitional	Opportunistic	Modular	Brokerage	Resist
Digital	Aggressive	Non-Linear	Brokerage/Reflexive	Engagement

withstand the attack on job controls. Paradoxically, however, in STV aggressive management and the introduction of individual contracts unregulated by collective bargaining has actually helped to reorganise the workforce.

We were virtually wiped out. Nobody believed the union could do anything constructive. We had to rebuild the union one by one by one (Interview, BECTU representative).

Given the institutional vacuum which was collective bargaining in broadcasting after 1989, BECTU's local officials' emergent strategy was to regain their credibility by representing their members during individual contract negotiations. Securing significant, sometime dramatic salary increases for both contract and permanent staff was critical in restoring the unions' presence in determining the terms of employment. Individual representation was symptomatic of their new strategy of going with the grain of current employment practices and so installing union membership as a central feature of the emerging identity of broadcasting professionals. Pragmatism not principle also dictated the unions' approach to the continuing introduction and synchronisation of digital technologies. For BECTU, resistance was simply unrealistic and inside STV the union has pursued a strategy of constructive engagement, of insisting that core or contract employees can adapt existing patterns of work organisation to assimilate new technologies. In the emerging discourse of collective bargaining, maintaining programme quality is the unions' most powerful defence of job territories. This is both a tacit acknowledgement of their powerlessness and the continuing fluidity of the broadcasting division of labour. In contrast to the period before the 'Way Ahead' agreement, the technicians' unions cannot use formal bargaining or custom and practice to capture new technology. This profound powerlessness was expressed in a vote to strike against excessive hours and managerial autocracy in late 1996. For union members this was a cathartic moment: 'the worms have turned', insisted one senior contractor (*Scotland on Sunday*, 11 November 1996). However, the governance of collective bargaining has remained virtually unchanged. STV made a tactical adjustment, encouraging individual employees and contractors or their union official to appeal directly to executives if the demands of front line managers were excessive (Interview, STV Director of Corporate Affairs). The unions' acceptance of this extremely weak formulation is regarded as part of the process of rebuilding representation and bargaining institutions inside the company. The unions have re-established a voice inside STV but more an insistent whisper than a legitimate clamour.

Conclusion

We began by contesting the adequacy of overarching descriptions of the broadcasting industry which conflate complex and lengthy processes of economic restructuring into prescriptive categories such as flexibility and flexible specialisation. Only by peering beneath the meso-level of the sector into the choices of individual firms and workplaces we can gauge the impact of corporate strategy and new technology on work processes and trade unionism. But our analysis offers more than a corrective to overly optimistic accounts of the emergence of a new organisational paradigm in

broadcasting based on loose social networks which displace hierarchy and enhance creativity. Rather, the long-run dynamics of work organisation in broadcasting pose central questions for labour process theory. There is no doubt that the craft practices and sensibilities that underpinned the broadcasting labour process to the late 1980s have been decimated. But these craft practices derived more from the inherent unreliability of production technologies than from the technicians' imaginative input to the final product. Craft knowledge co-existed with a profound separation of design and execution. In this important sense, our use of the term 'craft' to categories the broadcasting division of labour before the mid-1980s requires some qualification: technical labour controlled the routine logistics of production but had little aesthetic input. This is the paradox of the introduction of digital technologies to broadcasting: digitalisation has significantly increased the technicians' role in the aesthetics of programme making. While there seems to be a secular decline in technical training in the industry this has been accompanied by an increase in the degree of reflexivity expected of broadcasting technicians. The scope, depth and durability of this reflexivity must, however, remain an open question. That said, this shift towards an enhanced creative responsibility for technical staff is as important to the emerging occupational identity of broadcasting technicians as the casual nature of their employment.

Digital production technologies were fundamental to the remaking of the broadcasting labour process. Initially, individual pieces of digital equipment were introduced and were used to mimic rather than displace existing electrico-mechanical techniques. The strength of national agreements and local trade union bargaining permitted the introduction of new technologies to enhance programme quality but not to displace labour. From the mid-1980s, however, the management intent behind the extension of digital technologies rapidly moved to eliminating labour. Controlling the labour process had moved from being a marginal concern for commercial television stations to being imperative to competitiveness. This shift was signified by the articulation of increasingly fine-grained financial tracking of the components of programme costs. Crucially, these shifts in management strategy and practices were underway *before* the Thatcher deregulation of the industry was signalled by the 1989 Monopolies and Mergers Commission report on trade union restrictive practices. The Thatcher reforms did not initiate the management assault on the broadcast trade unions but accelerated processes already being played out inside the commercial television companies. The reduction of labour costs rapidly displaced programme improvement as the rationale of digital technologies. This dramatic shift was the result of the demolition of the settlement between capital and labour developed from the birth of commercial television. Both the institutional order and the unions' lay organisation were overturned inside the five years before 1990. In broadcasting, union reorganisation takes place against a gloomy backdrop of an overstocked and constantly replenished labour market, assertive management, and uncertain rights to representation. Only by embedding union membership as a key component of the still-fluid occupational identity of broadcasting technicians can the unions hope to make durable gains in commercial television studios.

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