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**Coworking Spaces, Accelerators and Incubators:
Emerging Forms of Museum Practice in an Increasingly Digital World**

by Oonagh Murphy

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Abstract

Digital technologies have begun to radically disrupt museum business models. The quantity of information available online today has never been so abundant, and easy access to information calls into question the role, purpose and 'usefulness' of museums. When director of Newark Museum, USA, in the early 20th century, John Cotton Dana, promoted the idea of a 'useful' museum. He considered that the presence of museums would be beneficial for cities and sought to bring together art, science and industry. A century later, a number of museums are creating in-house start-up hubs for creative entrepreneurs to work, collaborate and create within their museums. In doing so, these museums are reimaging Cotton Dana's vision for the 'useful' museum into one that is fit for purpose in this digital age.

The present article focuses on how three museums are responding to the disruptions provoked by the proliferation of digital technologies and a broader interpretation of the museum's remit, by redefining their role, purpose and practices. By developing a space for creative entrepreneurs within their museums, Te Papa (New Zealand), New Museum (USA) and ACMI (Australia) are redefining what a museum of the 21st century could be. Through a series of semi-structured interviews with senior managers at these museums, this article examines the strategic, practical and theoretical implications that these spaces, commonly referred to as 'start-up hubs', have for museum practice. The analysis of an emerging mode of museum practice as a means to support museum professionals and academics who seek to engage critically with digital culture and emerging business models in museums will follow.

Key words: digital culture, coworking, incubator, accelerator, start-up hub, diversifying income streams, Creative entrepreneurship

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**Co-working spaces, accelerators and incubators:
Emerging forms of museum practice in an increasingly digital world**

The birth of the World Wide Web, Web 2.0 technologies, and the emergence of a pervasive digitally mediated culture, has begun to challenge the museum institution at its very core. In less than two decades, digital technologies have brought about revolutionary change and facilitated the development of new modes of museum practice from 3D scanning and printing of objects, to the creation of websites, apps and interactive visitor experiences (Murphy 2016).

It takes a confident institution to recognise that whilst digital technologies are quickly becoming imperative to contemporary museum management and practice, these technologies must advance a museum's strategic and business plans if they are to truly add value to the work of museums (Falk and Sheppard 2006; Peacock, Lu, and Swatman 2007). One way that cultural organisations are using digital technologies to further their mission is through the creation of dedicated spaces for creative entrepreneurs to work, grow and create new products, goods and services. Gone is the need for a dedicated studio space: today, a desk, a computer and access to Wi-Fi is all that is required by many creative entrepreneurs (Essig 2018; Essig 2015; Essig 2014; Kahn 1995). Such spaces are commonly called 'start-up hubs'.

Shifting patterns: a new economic model for museums

The development of start-up hubs in museums is a relatively new phenomenon, and a direct response to changing working patterns in wider society. Since the 2008 economic crisis, employment patterns have moved away from a corporate culture, towards precarious, freelance and self-employed labour (Merkel 2015). As a result, the spaces in which work is carried out have also changed, with the development of new coworking spaces (Moriset 2013).

These new spaces are collaborative offices where those sitting at adjoining desks are working for different companies, often in different industries and time zones all through their computer or smartphone (Gerdenitsch et al. 2016). 'Start-up hub' is a broad term used to describe a much more nuanced landscape with varying business models, programming, and agendas.

This article will introduce a taxonomy of start-up hubs as a means to classify and discuss critically the different modes of practice represented in the three museum-specific case studies examined here. Whilst the idea of inviting commerce into the museum may at first glance seem revolutionary, history tells us that commerce and creation have always been interwoven threads in the fabric of museums.

In the early 20th century, revolutionary museologist and founding director of the Newark museum, John Cotton Dana defined, *The Kind of Museum It Will Profit A City To Maintain*. He suggested that such a museum would present the city in an exciting manner to visitors, encourage and support the development of manufacturing methods, and enlighten and inspire students by introducing them to

modern industry (Cotton Dana 1920).

Today, some museums are rising to the challenge set by Cotton Dana, nearly 100 years ago, by creating start-up hubs. These spaces, whilst diverse in their method of delivery are, at the very core, physical spaces for the creation and co-creation of new cultural products, goods and services, by creative entrepreneurs (Capdevila 2013; Dempwolf, Auer, and D'Ippolito 2014; Dovey and Pratt 2016; Gerdenitsch et al. 2016; 'Learning for Creative Hub Leaders' 2018; Miller and Kirsten 2018; Spinuzzi 2012; Waters-Lynch et al. 2016). These spaces represent a cultural shift, which began with the slow, and at times difficult introduction of digital technologies into museum practices. This, in turn, led to the birth of dedicated digital teams, through to what could now be considered a digital first business model (Decker 2015; Parry 2007; Peacock 2008; Kelly 2010).

We are beginning to see digital practice move away from being something assigned to a distinct digital department. Towards digitally focussed jobs roles existing across the museum institution, from curatorial to development, education, to visitor services. Rather than digital technology, and indeed digital culture being viewed as a novelty, the development of start-up hubs represents a seismic shift towards digital culture.

A brief history of museums and digital culture

The ubiquity of digital technologies has provoked a wider cultural shift, with visitors now seeking to enter into a reciprocal dialogue with cultural institutions. No longer are museums expected to merely provide communication platforms to share collections, publish research and communicate with visitors, thus replacing traditional, analogue modes of museum practice. With the advent of Web 2.0 and social media, the movement towards participatory engagement became prominent. Web users are now active creators and participants in the development and analysis of available knowledge, rather than simply consumers of information.

Tim O'Reilly and Dale Dougherty coined the term 'Web 2.0' in 2004. However, their initial emphasis on software and technology platforms has, in recent years, 'lost its tether to the web-programming models it espoused and has become closely linked to a design aesthetic and a marketing language' (Mandiberg 2012, 4). As such, Web 2.0 can best be defined as an 'ethos or approach' rather than a defined technology platform (Gauntlett 2011, 5).

Social media has provided new ways to collect and share information, and harness 'collective intelligence' (O'Reilly 2018). This approach is a significant value shift, in that it requires museums to move away from the role of custodian of knowledge towards a more open model, which recognises that there is more talent outside of the institution than within it (Guntaillike 2008). One way that museums have responded to these developments is by inviting creative entrepreneurs to work, create, and collaborate within the walls of their museums in dedicated coworking spaces, incubators and accelerators.

While this approach has been discussed on the specific museums' websites and in the local press, to date no academic peer reviewed analysis of this new mode of museum practice has been published. The aim of this article is to fill that void by considering three museums that created dedicated spaces in which creative entrepreneurs could work and identifying some of the challenges that other museums might face if they were to launch a hub of their own.

Do what you love: market demand

Start-up hubs originated in the private sector, and were later co-opted by the public sector. This has led to a revolution in work practices. The public sector (government funded) sees such spaces as a way to 'foster entrepreneurship and regional economic development' while in the private sector 'rent seeking' models have supported the growth of these spaces (Pauwels et al. 2016, 14).

The online platform *deskmag* has commissioned an independent market analysis of coworking spaces annually since 2015. Whilst reporting on current market size this report also identifies trends and forecasts market growth. *deskmag* forecasts that '1.7 million people will be working in around 19,000 coworking spaces around the world by the end of 2018' (Foertsch 2018, np). This report also showed that in 2017, the number of coworking spaces grew by 29 per cent globally over the previous year. The growth in this mode of working can be attributed to a number of external factors including the 2008 economic crisis, the rise of the 'creative economy' and the digitisation of the economy (Moriset and Malecki 2009; Moriset 2013, 2; Florida 2003).

Moriset (2013, 3) argues that a twofold economic shift created a rise in those becoming self-employed or working for micro businesses, namely, the emergence of the knowledge economy and its development into the digital economy. With this shift in working patterns came a shift in the physical requirements of the work place. Tech giants such as Apple and Google led the way by reinventing the 'office' as we know it, 'with an overabundance of open spaces, meeting rooms, and relaxing areas aimed at favouring informal socializing and transversal relations among teams of engineers, designers and software experts' (Moriset 2013, 4). This shift has created a lifestyle trend of coworking, solo entrepreneurship and freelance working, compatible with a popular culture narrative of what Duffy (Duffy 2016) describes as *do what you love*.

At times, freelancing can be a lonely and precarious mode of working. Merkel (2015) argues that start-up hubs can improve this by providing curated daily experiences: 'coworking hosts assemble and create relations and meanings, and endeavour to stimulate new work experiences amongst freelance professionals' (Merkel 2015, 135) Similarly, Gerdenitsch suggests that coworking spaces 'represent one possible buffer against isolation by providing, in addition to business infrastructure, the opportunity for social interaction' (Gerdenitsch et al. 2016, 1). Spinuzzi also refers to social connectivity as a key driver for solo entrepreneurs moving from home-based working into a communal work space. Thus, the ability of 'working alone together' provides a viable new model for a contemporary workplace (Spinuzzi 2012).

Community, serendipitous exchange, and collaboration are central to this model of working, and echo the networks and participatory modes of web 2.0 technologies.

Format taxonomies

Up to this point, this article has used the term 'start-up hub' as an umbrella term to describe the places and spaces where creative entrepreneurs locate themselves when working. However, the makeup of these spaces is diverse and complex. Within this complex and growing space, three common formats have emerged, both in the development and use of these spaces, and also in the limited but growing academic literature on this mode of working: 1. Coworking 2. Incubator 3. Accelerator.

Coworking spaces

Gerdenitsch et al. describe coworking spaces as 'shared office environments for independent professionals' (2016, 1). This is similar to Merkel's definition, which focuses on the relationship between those working in these spaces: 'the practice of working alongside one another in flexible, shared work settings where desks can be rented on a daily, weekly or monthly basis' (Merkel 2015, 122). London Enterprise Panel places emphasis on the light-touch contractual relationship between spaces and their tenants: 'The spaces provide a combination of workplace and supporting facilities at affordable rates with easy in-out contractual conditions. The renting of space is set up to attract users who require ad hoc and short-term access to workstations and supporting facilities such as meeting rooms' (Brooke 2014, 5). Coworking spaces often have a wrap-around programming offer that helps to foster a sense of community among people working in these spaces. Coworking spaces could be described as a light-touch format, with desk space being the baseline requirement.

Incubator spaces

Like coworking spaces, incubators provide desk space. However, incubator spaces will often be available for a limited period of time, during which tenants are provided with tailored support to help them develop their business. Affiliation with, and prestige of, incubator spaces and programmes can be a particular draw for residents, and there is often a competitive application process (Bank and Kanda 2016). Similar to coworking spaces, tenants of incubator spaces pay a fee to participate. It could be described as a middleweight offer, with a strategic and tailored support offer for tenants.

Accelerator spaces

Similar to incubators, accelerators are intense and time-limited programmes, which on average last between three to six months, and provide tailored support and mentoring with a view to financial growth and market sustainability (Pauwels et al. 2016, 15). Whilst the delivery structure of accelerators are similar in some ways to both coworking and incubator models, a key distinguishing feature is that 'tenants sign over part equity as a participation fee instead of paying a participation fee (Dempwolf, Auer, and D'Ippolito 2014, 6). As a financial return and business growth is central to the rationale of accelerators, they are also the most competitive of the three formats discussed in this article (Brooke 2014, 5).

Start-up hubs in museums

The following section is dedicated to start-up hubs in museums, and will focus on this innovative use of museum spaces in particular. Given the lack of previous research on start-up hubs within museums, I used an inductive approach to select three case studies that represented the three start-up hub formats identified above. Inductive sampling supports early investigations into new cultural phenomenon and enables researchers to ask 'how' orientated research questions (Pauwels et al. 2016, 15).

There are currently only three fully staffed and resourced spaces within museums. As such, the three case studies have been selected so as to bring out common aspects, patterns, and develop a theory of practice. Ciecko (2017) introduces these three museum-based start-up hubs, and places them within a wider conversation on start-up hubs in the technology sector. He urges museums to be cautious when approaching this model: 'None of this is core to the museum's mission. Straying too far from the basics, conceptually and financially, can have a negative impact' (Ciecko 2017).

The museums listed in that article, are also the only three fully resourced start-up hubs (in terms of dedicated staffing and physical space), which currently exist within museums in the US, Australia or New Zealand. The Australian Centre for the Moving Image (ACMI) is Australia's national museum of film, TV, video games, digital culture and art, and has a permanent museum building with an onsite cinema. Staff are based in a separate administrative building. In 2016 ACMI opened ACMI X a 300-square-metre coworking space which was designed to hold 60 creative entrepreneurs, who work within the creative industries. Desk space was priced at the middle of the coworking market, at \$600 AUD per month. For that fee tenants have a fixed desk, access to a communal kitchen, a postal address in the building and access to a limited programme of events that are jointly offered to coworking tenants and ACMI staff. Museum staff and coworking tenants are situated next to each other in a single open plan office floor. The number of coworking tenants at the time of writing has risen to 72.

The New Museum is the only dedicated contemporary art museum in Manhattan, with a focus on living artists and a mission of supporting 'New Art, New Ideas.' In 2014, the museum launched New INC, 'the first museum incubator programme'. The incubator offers participants a coworking space, tailored high-quality intensive training, events, demo days and mentoring over a one-year period. New Inc is 2,438 square metres in size, offers 60 desks for full- and part-time members, and is managed by a team of seven staff. The selection process is competitive, and selected applicants will pay between \$400 - \$600 USD per month.

Te Papa is the national museum of New Zealand and serves as a forum for the nation to present, explore and preserve the heritage of its cultures and knowledge of the natural environment. In 2016 the museum launched Mahuki an accelerator programme for digital startups seeking to solve challenges pertaining to the galleries, libraries, archives and museum (GLAM) sectors. The programme costs \$750,000 New Zealand Dollars per year to run—which includes NZD \$200,000 seed funding for the participating teams. The accelerator programme is based in the museum building, and has a distinct office space. It also has its own brand identity.

Data collection

A multi-case study approach was selected because it enables the study of this emerging model of museum practice within a social context, and an overview of management decision-making processes in the development of this practice. Yin defines a case study as ‘an empirical inquiry that investigates a contemporary phenomenon within its real-life context when the boundaries between phenomenon and context are not clearly evident and in which multiple sources of evidence are used’ (Yin 1989, 23).

Multi-case analysis ‘provides a means to generalize and theorize on the broader topic’ (Essig 2018, 37). The boundaries between theory and practice becomes important when seeking to identify patterns and trends in terms of strategic planning and decision-making within an organisational context. The subtle and unspoken boundaries of practice are something that is not adequately accounted for in quantitative research studies (Yin 2009).

In developing these case studies, I was particularly interested in management decision-making processes with respect to the adoption of a start-up hub in the museum. The primary data for this article is drawn from semi-structured interviews with senior managers who have direct responsibility for the case studies discussed herein, and in two cases operational staff at each of the museums. This data was augmented with archival data from a variety of sources including webpages, reports, and newspaper articles. These secondary data sources were a valuable means of grounding the primary data within a wider contextual foundation, and supported the development of the detailed case histories of each case study, before a trends-based analysis was carried out across the three case studies (Pauwels et al. 2016, 15).

Museum	Interviewee
ACMI	Katrina Sedgwick – CEO and Director
ACMI	Seb Chan – Chief Experience Officer
ACMI	Helen Simondson – Head of Public and Education
Te Papa	Priscilla Long – Activation Manager
Te Papa	Tui Te Hau – General Manager
New Museum	Julia Kaganskiy – Director New Inc

The interviews were conducted between the end of 2017 and late April 2018 through Skype. This allowed for an international research scope, and the collection of data from a range of elite actors in different time zones within a short period of time. Skype, or video interviews, have become commonplace within social science and qualitative research and provide the benefits of face-to-face interviews, with the interviewee being able to see and respond to physical cues, and interactions (Janghorban, Roudsari, and Taghipour 2014; Janghorban, Roudsari, and Taghipour 2014; Hanna 2012).

However, as a method it also presents some of the challenges more commonly associated with telephone interviews such as pauses, interruptions, signal problems, and stunted conversation flow (Seitz 2016). Each interview was audio recorded and transcribed verbatim. The interviews lasted between 30 and 60 minutes; those with senior management responsibility were invited to participate on their own, or to invite operational and delivery colleagues to join the interview session.

Interview participants were provided with a research abstract, and a list of 16 questions by email in advance. The questions focused on the development of the startup hub, strategic and personal actions that lead to its creation, the relationship to the wider workings of the museum, physical and human resources, and planned and unexpected impacts of this model. Specifically, hard impact (measured with numbers) and soft impact (which designates the more intangible cultural and organisational changes) were observed by those leading these spaces.

Dovey et al. argue that, in order to fully understand the mechanics of a hub, it is important to look beyond a 'rigid template model' and instead appreciate that 'Hubs are characterised best by the ways of doing and the value systems that underpin them' (Dovey and Pratt 2016, Introduction). As such, participants were informed that these questions would be used to inform the discussion, but were encouraged to lead the conversation and place value on, and offer analysis of the intangible, serendipitous, and value systems at play within the spaces in which they work (Moriset 2013, 8). At the end of each interview participants were asked 'is there anything else you would like to tell me about your work, that I haven't asked you about so far?'

This question provided the opportunity to increase the validity of the data, by ensuring that both operational and theoretical considerations of those responsible for managing and delivering these projects were accurately reflected in the interview data (Irvine, Drew, and Sainsbury 2013).

Data analysis

The interview data for each case study was augmented with archival data. This data provided an important contextual framework from which to situate broader themes within a local, financial and strategic context. Having collated a qualitative data set, I then carried out a thematic analysis across the three case studies. This approach sought to move the conversation beyond what Dovey et al. describe as a 'singular and reductive evaluation of creative hubs' towards an analysis that looks at their

'constitutional value systems' (Dovey and Pratt 2016, Introduction).

Thematic analysis identifies, analyses and reports patterns or themes within a qualitative dataset (Boyatzis 1998; Braun and Clarke 2006). As a means to 'retain the holistic and meaningful characteristics of real life events [...] such as organizational and managerial processes' verbatim quotes are used to illustrate each theme, with direct analysis of each long quote provided as a means to draw out the contextual significance of the respondents answer' (Yin 1989, 3; Corden et al. 2006).

While this paper primarily looks at common trends across case studies to provide a taxonomy and model that can be replicated across other Western museum contexts, emphasis is also placed on the unique, local, and distinct features of each case study as a particular strength of museums within this emerging space for entrepreneurial development provision. Four key themes emerged from the analysis.

Theme 1: Director instigated

Much of the literature on digital change in museums discusses change management, and the challenges of moving to a digital-first approach (Cairns 2013; Royston and Delafond 2014). Digital literacy and research into how to develop the digital skills of senior managers are also often discussed (Barnes et al. 2018; Parry et al. 2018).

In, the three case studies presented above, a common theme was identified: the initial idea to develop a coworking space came from the CEO or the Director of the museum. Katrina Sedgwick, Director of ACMI (Australia), explained that she had been interested in coworking spaces since her previous job working at the Australian state broadcaster ABC. When Sedgwick arrived at ACMI, she found a siloed working culture, with staff split across different buildings and floors:

There was nowhere you could have those threshold conversations that are really important in a kind of creative, collaborative work environment. And of course the top floor was the boardroom floor with finance, admin and HR, completely isolated from the creative people (Sedgwick 2017).

Around the same time as Sedgwick arrived at ACMI, the museum was looking for a new administrative building as the lease on their current building was coming to an end. Having researched similar spaces in the UK (Somerset House and The Watershed) and the USA (New Inc), Sedgwick proposed the development of a new coworking space, which would require the museum to sign a lease on a new, much bigger building. The advantage was that this space would allow all museum staff to be physically located in the same building, on the same floor, alongside coworking tenants.

Similarly, at New Museum (USA), director Lisa Phillips, and deputy director Karen Wong conceived the initial idea for an incubator programme partly in response to real estate availability. The museum had acquired a property adjacent to the museum in 2008. The building had been a light manufacturing site in the early 1900s and was later transformed into artist studios in the 1960s, to be occupied by

artists like Robert Indianna and Jim Rosenquist.

The building was the ideal location for a creative space as it had a history of both housing light manufacturing and creative practice. This coincided with the development of a series of successful new areas of programming for the museum: *Ideas City* – which is a series of workshops, events, and labs that seek to respond to the idea that ‘the premise that art and culture are essential to the future vitality of cities; and *7x7*, a programme, by *Rhizome* in partnership with New Museum, which pairs seven artists with seven technologists.

At Te Papa (New Zealand) the *Mahuki* accelerator programme was initiated by former Chief Executive Rick Ellis. Ellis had acquired first-hand experience setting up an accelerator at Telestra (telecommunications company), and was also familiar with the technology and start-up scene in New Zealand. Ellis worked with Melissa Firth, chief digital officer at Te Papa to develop a model that would help support the distribution of learning and assets across the museum and move from a project-by-project approach to digital development.

Theme 2: Mission-led

Katrina Sedgwick explained that for ACMI, developing a coworking space provided a new way to interact with the media industries; the space provided a shop front of sorts, which was a platform for engagement with the industry the museum collected and exhibited. It allowed the museum to work with people not just objects, and to be industry facing in its industry of new technologies and emerging practices in the media industry.

It's about us having that daily representation, an industrial sense of who we work with, it's about being seen to be an enabler as an institution that is leveraging our resources back into the sector... It's about setting up opportunities with the local sector (Sedgwick 2017).

Kaganskiy (New Museum) reflects on the value of museums being able to provide creative entrepreneurs with the opportunity to focus on developing cultural as well as financial capital, ‘One thing I often say is our aim is to promote and foster more kinda cultural capital as opposed to you know, just financial capital’ (Kaganskiy 2018). Across all three case studies we see discussion, and emphasis on the need for museum coworking spaces to reflect the values of the museums themselves. This mission-led approach also provides room for disruption within the wider coworking model that exists in the commercial sectors. Kaganskiy frames this within the context of appropriation, for her museums have to potential to create new ways of working within this new creative economy, and should seek to disrupt the existing approach rather than simply copying what is already available.

My hope for New Inc from the very beginning was to reimagine the incubator, reimagine the accelerator, and not simply do what Silicon Valley is doing but to try to do it more equitably, diversity has been super important to us and something that I think we have prioritized working on, we've really tried to look at

sustainability vs scalability, not to say that we won't bring in projects that we think are scalable but that scalability is not an end goal in and of itself (Kaganskiy 2018).

Increasingly, museums are seeking to enact a positive change within society, and the idea that museums can use coworking spaces within their walls as a means to create a positive change to coworking spaces beyond their wall is an interesting provocation (Museums Association 2013). It was a common theme discussed by interviewees from each of the three case studies, Kaganskiy framed this as a 'purpose over profit' mission:

I think are just consistent with our values as an institution and they're reflected in everything from our curatorial programming to the way that we run New Inc (Kaganskiy 2018).

For the three case studies examined in this paper, the decision to develop a space for creative entrepreneurs was motivated by two factors 1) as a means to become useful, active spaces for creativity and community 2) to develop new income streams, as well as a more robust business model fit for the emerging digital economy in which museums and the wider society now operates.

Te Hua emphasises that the value of the work of *Mahuki* is in its ability to create a space for diversity, and access within what has become a problematic and privileged entrepreneurial space in wider society:

Mahuki is much more than just an accelerator, it's the accelerator as the granddaddy programme but around it we do a lot of work developing an ecosystem so that tertiary outreach, that's start-up programme.[...] We're doing a lot of work with indigenous communities here in New Zealand to encourage them into the programme (Hua 2018).

Sedgwick mentioned developing 'communities of ownership', a theme that was raised by all those interviewed (Sedgwick 2017). These communities exist both within core museum staff and external partners. Seb Chan, who works at ACMI, described how the decision to host their coworking space within the same open plan office as museum staff had created challenges but also opened up new conversations and led to new ways of working. At ACMI coworkers and museums staff work in the same physical space, desks are interwoven and there are no dividing walls, this was a deliberate design choice, to encourage coworkers and staff to mingle.

There's still philosophical and psychological boundaries, but the physical thing is pretty interesting and that's really changed the ability for the education of the program staff and the curatorial staff to get contact with people who are actually working, and making, in the field that they are thinking about, without having to make a phone call (Chan 2017).

Simondson also noted that this had changed how the museum interacts with the media sector, with a move away from formal meetings towards casual meetings in the communal kitchen surrounded by

museum staff and coworkers (Simondson 2017). Long, Chan and Kaganskiy all observed that their institution's engagement with creative entrepreneurs, whilst not without its challenges had led to a more open and responsive working culture,. As Long noted,

There's definitely that culture change where a lot more people are quite open and talking about challenges and or problems within the sector (Long 2018).

This culture shift has resulted in staff at Te Papa (New Zealand) moving from a cautious, and skeptical attitude towards Mahuki, to actively developing themes and challenges to put to participants on the accelerator programme. At ACMI they are beginning to see a wider culture shift with boundaries between museum staff and coworkers through a process of what Chan describes as Osmosis, 'You know it's like having a curated bunch of nerds' (Chan 2017).

Theme 3: Diverse business and funding models

Whilst all interviewees spoke of the desire to create supportive environments for creative entrepreneurs, and highlighted how they provided a valuable alternative to commercial operatives, the business model behind each varies greatly.

ACMI X is self-funding, with income drawn from desk rental; it also creates a small surplus which acts as a new income stream for the museum. This approach was developed by Peter Tullin, founder of the Remix digital culture conference, who was hired by ACMI to draw up a business case for the coworking space. Tullin analysed a range of coworking models, and spoke with local creative entrepreneurs and identified a gap in the market for a museum to fill. The museum provided a unique offer, in that it offered not only a custom-built space, but also a prestigious head office, and postal address for even a solo entrepreneur. With this, ACMI felt confident signing the 10-year lease on an administrative building that would house its 80 staff, and provide 60 desks to be rented out. At the time of writing, the museum has expanded this offer, and now has 72 rented desks, and a waiting list for future rentals.

For Te Papa the development of *Mahuki* served two purposes. Firstly to deliver on its state-mandated responsibility 'to facilitate the development of the cultural sector, particularly museums, art galleries and within iwi' (the iwi being the Māori people of New Zealand) and secondly to open conversations with new funders and secure new income streams ('Strategic Narrative' 2017).

The mandated responsibility of supporting digital innovation beyond national museums is perhaps an unexpected driving force for the development of a start-up hub or coworking space, but it provides some insights into how small, and regional museums could be supported to develop their digital capacity (Murphy 2013; Murphy 2014). As Pricilla Long explains:

The idea behind this was kind of to set something up that could in turn help the wider sector as well and so those companies that come in, they're developing innovation that would

ideally help lift the capability of everyone in the GLAM sector (Long 2018).

A second driving force for Te Papa was that the development of this new model would open up new income streams. In the first year that *Mahuki* opened it was supported by both Te Papa's core funding, and Vodafone, in its second year it drew funding from Callaghan Industry, the government department responsible for helping 'New Zealand business succeed through technology' (Callaghan Innovation 2015). Both funders were new to the museum. Alongside financial support, *Mahuki* has received sponsorship in kind from a range of business service providers including Deloitte and Morrison and Kent (legal services). Unlike the other case studies discussed in this paper, Te Papa has the option to take a 6 per cent equity in any of the businesses that partake in their accelerator programme. The museum not only supports these creative entrepreneurs to develop and grow their companies, it also has a financial interest in their success.

New Inc offers a mixed funding model, with participants' fees covering 60 per cent of running costs and philanthropic backing covering the other 40 per cent. Funders include the Knight Foundation, Nokia Bell Labs, IDEO, HP, Kate Spade & Company Foundation, and the William Randolph Hearst Foundation. In total 53 distinct supporters are listed on the New Inc website.

This diversification of income streams and creation of new business models can also lead to the development of new audiences, and a new relevance. 'We can build community, we can build our brand. We can change very quickly what our identity is an institution by bringing something like this in' (Sedgwick 2017). The tone and speed in which these new start-up hubs both operate and communicate provides opportunities for museums to speak to audiences in new ways. Long noted that visitors have responded positively to *Mahuki* having its own dedicated social media platforms, which sit in parallel to those of Te Papa. An unexpected outcome of this approach has been members of the public getting insight into what happens 'behind the scenes' at the museum.

... you never see the sort of back end side of things, so through our social channels and because we operate quite independently and all of us are from the start-up community we're quite open (Long 2018).

Kaganskiy also discusses how collaborations have led to new opportunities for the museum to assert its contemporary relevance, by being able to offer the latest technology as the foundation for education workshops. For example, New Museum worked with New Inc resident Print All Over Me – a fashion technology start-up to run a workshop teaching young people how to use this new digital printing process to design their own garments. The programme concluded with a fashion show at the museum.ⁱ practice.

Theme 4: Staffing

Each of the three museums interviewed created dedicated and new specialist roles to develop and deliver their start-up model, with each museum hiring staff new to the museum sector, and many being

directly head hunted from the technology sector. Julia Kaganskiy was formerly at Vice Media, prior to joining New Inc, Tui Te Hau had developed a well-known accelerator programme, and worked in the technology sector before joining Te Papa, and Katrina Sedgewick had been both a broadcasting executive and festival director before joining ACMI. At Te Papa, Activation Manager Priscilla Long had been working in her own start-up company before becoming a part-time employee at Mahuki (she later became employed full time). She noted that she was first hired, some two weeks prior to the launch of *Mahuki*, senior managers were excited, while junior, and more traditional museum staff were left confused by what it was all about. Two years since Mahuki opened, Long reports a change in attitude, and understanding within the wider Te Papa team.

With job titles such as Activation Manager, Chief Experience Manager, Director Recruiting and Community Engagement, and a staff body primarily coming from outside of the museum sector, there is obvious potential for tensions between work cultures. That said, the only interviewees who had a 'museum career' were those from ACMI, who also spoke of similar challenges.

With staff complaining that they wanted their own private kitchen and desk space, it has not been a seamless transition in terms of workplace culture, but a rapid one nevertheless. 'It's been interesting to see now like fifteen to eighteen months in, that even the most complaining of staff will sit in what they see as their staff lunch room and there'll be businesses doing their business meetings beside them and they're not griping anymore' (Chan 2017). Long similarly reflects on how this model can be challenging for museums *...in many ways we are a little bit disruptive of the traditional operation of the museums sector and so I can see how they could get quite guarded, thinking that we might be stealing their jobs or bringing in robots to replace them and things like that* (Long 2018).

However the transition of work culture at Te Papa demonstrates the strategic benefits that can come from adopting and engaging with this new mode of museum practice. 'There's definitely a lot more openness to kind of communicate challenges, and not feeling scared of you know, articulating challenges. As well as the cultural shift in openness to digital now has also increased [...] they're [museum staff] a lot more open to doing things differently' (Long 2018).

These case studies show that while developing new job roles, and working with professionals that may be new to the museum sector can have its challenges, the positive impact can be felt across the organisation when managed well,.

Start-up hubs and the digital revolution

Through the above examples, I have attempted to show that start-up hubs can be diverse physical spaces, with varied methods of management and delivery. However, central to the three case studies was a mission to create a new space for creative entrepreneurs focused on supporting and developing new talent in line with the wider mission of these museums.

These spaces represent a significant cultural shift for museums, moving their application of digital technologies, and their response to digital culture beyond the adoption of a social media policy, towards the adoption of innovative new business models that help to diversify income streams, and demonstrate the continued relevance of museums in an increasingly digital age. In addition, the case studies demonstrate that a well-managed start-up space, be that a coworking space, incubator or accelerator, can have positive implications for museums, namely:

1. New funding streams
2. New relevance
3. Organisational change

However it is important that we also consider the limitations and indeed uncertainties surrounding this emerging model of museum practice. Something which Kaganskiy advocates strongly.

I think it's really important not to fetishize technology or to think that know, an incubator is going to be like the magic bullet for your institutions financial sustainability but ... it can offer some advantages, but it's not without its challenges and complications (Kaganskiy 2018).

Conclusion

The three case studies examined in the present article were all built on a solid foundation of market research, with each being developed over a number of years, and the process being led by senior managers, board members, and external consultants. The data in this article demonstrates that within museums that have the physical space, the desire to diversify income streams, and reimagine their role and purpose within a range of creative industries, this new model of museum practice, that of the museum start-up hub, is an exciting, and viable new way of asserting their continued cultural relevance. This paper focuses primarily on the development, funding and management of these spaces. However, future work is needed to examine their programming, and how they can or could further engage with museum collections.

A benchmark from which to carry out further research or to map the trajectory of coworking, incubator and accelerator spaces within museums was provided here. There would of course be merit in revisiting the case studies and staff working at each in the coming years, to see how time and experience changes the thinking, practices, and permanence of such spaces. With a yearly growth in the provision of work spaces for start-ups and creative entrepreneurs, Moriset advocates caution around the sustainability and growth of commercial operators (Moriset 2013, 2). Nevertheless, in an increasingly crowded commercial landscape, perhaps museums could offer a unique point of difference, providing ethical spaces that support the development of cultural as well as financial capital within this emerging economy.

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ⁱ Insofar as the present article primarily focuses on the management of these spaces, and the relationship between staff and tenants, further research on the impact these new spaces have on visitor experience; and, the value of these programmes and spaces for tenants and creative entrepreneurs operating in these spaces, would be a welcome addition on this developing mode of museum