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Published in:
Research on Project, Programme and Portfolio Management

DOI:
[10.1007/978-3-030-60139-3_5](https://doi.org/10.1007/978-3-030-60139-3_5)

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Recommended citation(APA):
Skulmoski, G. J., Langston, C. A., Patching, A., & Ghanbaripour, A. (2021). Sustainable Project-oriented Careers: A Conceptual Model. In R. Cuevas, C-N. Bodea, & P. Torres-Lima (Eds.), *Research on Project, Programme and Portfolio Management: Integrating Sustainability into Project Management* (pp. 55-80). (Lecture Notes in Management and Industrial Engineering). Springer. https://doi.org/10.1007/978-3-030-60139-3_5

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Chapter 5

Sustainable Project-Oriented Careers: A Conceptual Model

Gregory J. Skulmoski, Craig Langston, Alan Patching, Amir Ghanbaripour

Abstract: An area of interest for project participants is one's career. It may be as simple as looking for the next consulting contract in the Gig Economy, taking training, or thinking about the next 5-10 years to accommodate planned changes such as semi-retirement. The literature hints that project participants who take a sustainable approach to career management may enjoy better outcomes. We look at the sustainable project-oriented career concept and propose key error messages that signal career risks, such as the absence of substantial training or education within the past ten years. We examine the sustainable project-oriented career framework within the Gig Economy, including the need for periodic renewal through education and training. We review key innovations in education and training that project participants can leverage to improve career sustainability. This paper combines emerging theory with practical advice to develop sustainable project-oriented careers and to thrive in the Gig Economy and beyond.

Keywords: Sustainable project-oriented career, systematic literature review, sustainable career turbulence, sustainable career drivers

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5.1. The Classic Project-Oriented Career

Modern project management is a relatively new phenomenon despite the long history of projects throughout millennia; we did not use modern terms to describe what was happening (e.g., even though we had a project sponsor for building the pyramids, they were not called project sponsors; they were simply called pharaohs). It was not until the 20th Century that modern project management emerged as we know it today. Carayannis, Kwak, and Anbari (2005) reviewed the history of project management and traced the shift of focus from tools (e.g., PERT and Monte Carlo) to the human element (e.g., matrix organization and human resource management). We see professional organizations like the International Project Management Association form, grow and offer certifications to foster project management competence and the project-oriented career.

During this time, organizations also long relied on projects to bring new products and services to customers. Favaro (2015) distills the history of business strategy, moving from efficiency targets, through to increasing scale and improving quality, to the rise of integrated networks and ecosystems to serve customers. To achieve the strategy, organizations would plan for five to ten years and then launch a series of carefully and fully-planned projects. Many organizations transitioned to a project-oriented organization to help achieve their strategy (Gemünden, et al., 2017).

5.1.1 Accidental Project Manager

The project-oriented career began to evolve in this time of change. In the past, a typical career in projects began when a person joins a project team as a junior member. If they do well, then they might be promoted to a “senior” project participant (e.g., Lead Engineer). Then if they succeed, we stop them from what they do well and then give them the new role of project manager often without formal training (or they attend project scheduling software training). There is little wonder looking back that we have not equipped our project teams to succeed since many “accidental” project managers led these challenging projects (Hartman, 1999).

Professional organizations offer project-oriented certifications to address competency gaps:

- International Project Management Association (IPMA) – Certified Project Manager,
- Project Management Institute (PMI) – Project Management Professional,
- Global Association for Quality Management (GAQM) – Certified Project Director,
- British Computer Society (BCS) – Chartered Professional,
- Association for the Advancement of Cost Engineering International (AACEI) – Certified Cost Professional,
- EC Council - Project Management in IT Security.

Therefore, we see that the project-oriented career has become more formalized, requiring training and education in areas in addition to technical competence like engineering and project management tool proficiency such as budgets and schedules (Hartman, 1999). Planning a career in projects has become much more complex due to significant changes occurring in the business world. In the past, senior management would identify strategic goals, then launch a series of carefully planned projects; however, the timelines now are much more compressed, and the business environment is anything but stable. Agility, disruption, data analytics, and integration are the new business mantra (Favaro, 2015).

5.2. The Gig Economy and Other Systemic Changes

Long-term planning and a stable workforce were characteristics of the business environment that have long since passed. Now, we have a Gig Economy at the front end of the 4th Industrial Revolution. Indeed, Akkermans, Seibert and Mol (2018) state that a predictable career and lifetime employment with stable firms is a thing of the past. In this changing time, project-oriented people may re-examine their career path to be contributors rather than sidelined.

The Gig Economy may simply be described as temporary employment where contractors contribute to an organization’s efforts through hourly or piecemeal work. For example, an independent contractor

may join a project to set up and test a computer server, then leave the project when their contracted work is completed. Or the Gig Economy worker may be paid on a task-by-task basis such as delivery drivers (e.g., Uber drivers). Organizations now have more opportunities to hire temporary workers when required and minimize a core structure of full-time/long-term employees (Kobie, 2018).

Organizations increasingly are hiring temporary workers when needed; some in-house services are contracted to external contractors to improve organizational effectiveness and efficiency; by having non-core activities performed by contractors to allow an organization to focus on core activities. However, some organizations choose the outsourcing model to bring in highly skilled contractors to bring innovation to core areas of business (Erdogmus et al., 2018). The global demand for outsourcing in 2015 was \$524.4 billion and rose to \$565 billion two years' later. This growth has been primarily in logistics, IT (information technology) and business processing such as financial, human resource and call centers (Ikediashi & Aigbavboa, 2019). Indeed, IT outsourcing on a global level is expected to grow; such as in 2017 when outsourcing grew by 5.7 percent in that single year (Erdogmus et al., 2018). Indeed, some industries prefer the outsourced model rather than relying on in-house services: by 2020, 72 percent of all global clinical trials of pharmaceutical products is expected to be conducted by contract organizations with an annual growth rate of 6.9 annually (Wilkinson et al., 2019).

5.2.1 The 4th Industrial Revolution: Challenges and Opportunities

At the same time that the Gig Economy offers increased employment options, and business is more favorable to outsourcing, technology advances promise great change, opportunities, and challenges. The 4th Industrial Revolution (also known as Industry 4.0) is the continuation of step-changes to business beginning with the 1st Industrial Revolution (see Figure 1). We have progressed by applying steam, electricity and basic information and computer technologies to production. Now we see disruptive technologies being applied to virtual and physical activities on a global scale to allow organizations to cooperate to deliver new products and customizations in ways never before imagined possible or even demanded by consumers (Avis, 2018).

Disruptive technologies are those resources or tools used to produce things (e.g., artificial intelligence) or a finished product with disruptive characteristics (e.g., self-driving car). Other disruptive technologies include blockchain, gene sequencing, large-scale energy storage, building information modeling, nanotechnology, biotechnology, quantum computing, robotics, the Internet of Things, and other transformative technologies that can have dual potentialities to help and/or harm (Schwab, 2016). For example, we may see ingestible robots that repair injuries from within, and we may see jobs displaced by these disruptive technologies. Indeed, a recent survey of 1,730 project participants reported that 91 percent of them were impacted by disruptive technologies (PMI, 2018a). Indeed, there are technical “pessimists” who predict severe net job loss due to these disruptive technologies with significant impacts on society (Schwab, 2016). How is business impacted beyond the common challenges of global competition, shorter production cycles, and consumer demand for customization? What is the impact to project participants?

Fig. 1: 4TH Industrial Revolutions (adapted from 123RF, 2019)

The 4th Industrial Revolution will likely impact the business by changing consumer expectations (e.g., sustainability), product enhancement (e.g., add digital capabilities to products), collaborative innovation (e.g., work with others), and the way organizations form and organize (Schwab, 2016). The news media is ripe with businesses failing thanks to disruptive technologies: we know about the drastic decline of Kodak, Blackberry, and Blockbuster. Technology laggards are more likely to lack a mature digital business strategy, are risk-averse, and technology adoption is a low priority (PMI, 2018a). Many organizations may struggle against competitors who are agile and innovative, and harness global digital platforms for research, development, marketing, sales and distribution to outperform digital laggards (Schwab, 2016). Unfortunately, even if organizations have a digital strategy to deliver innovation, approximately one in 10 organizations fail to deliver that strategy (PMI, 2018a). That is, even if an organization has a well-thought-out strategy delivered through innovation, they are likely to struggle to deliver that strategy through a project approach. But it is not organizations that deliver – it is people who deliver innovations through projects to achieve the strategy. Therefore, Gartner (2019) recommends skill renewal to remain competitive.

5.2.2 New Project-Oriented Opportunities

Within these changes – Gig Economy, globalization, outsourcing, disruptive technologies, 4th industrial revolution, and more – project-oriented workers who desire to succeed, may think strategically about their careers. What does the project-oriented work forecast look like? Are there jobs in project management despite job loss predictions associated with the 4th Industrial Revolution? Crawford, French and Lloyd-Walker (2013, p. 1175) state that *“a growing percentage of the Australian workforce is employed in project-based or project-oriented organisations, leading to the claim that Australia is a project-based economy”*. A recent study found that global organizations (chiefly in the financial services, industrial and manufacturing, consumer services, government and non-profit, and retail and hospitality sectors) involved in delivering innovative projects rank the technical talent shortage as their top risk to strategy success (Gartner, 2019). Indeed, this shortfall is validated in a PMI (2017) study that also looked at the supply and demand of project-oriented people and forecasted a talent shortage:

- By 2027, organizations will need 87.7 million people in project-oriented roles;
- The talent gap could result in a loss of \$207.9 billion in GDP through 2027;
- On an annual basis, organizations will need to fill 2.2 million project-oriented jobs each year through to 2027.

Thus, while there could be an overall net job loss, there appear to be opportunities in technical areas, and especially in project management for people with the right skills. Technical proficiency (“Project

Management Technical Quotient” – PMTQ) with disruptive technologies is an emerging project-oriented skillset: the ability to select, modify, manage and integrate technologies to solve problems and add value to specific projects (PMI, 2019). Those with PMTQ competencies have three distinctive characteristics in addition to long-standing competencies like soft skills, project management tools and process expertise in traditional and adaptive delivery methods like Agile, and business strategy skills (PMI, 2019):

- Curiosity: they welcome new ideas and ways of doing things wherever it may lie on the low to high technology continuum. They have an open mind, tempered with some skepticism.
- Inclusive Leadership: they look after not only their team but their team’s resources such as technology and robots.
- Future-Proof Talent Pool: they recruit and nurture those who embrace these digital skills, and keep up with trends and adapt their own skill sets accordingly; there is a regular renewal of skills.

When a project-oriented person has these updated skills, including PMTQ, then they are more likely to find and keep jobs in project-oriented organizations (PMI 2018b) or to deliver value through an outsourcing arrangement. This raises the question: what can be found in the project-oriented literature and research?

5.3. Sustainable Project-Oriented Career

To learn more about sustainable careers, we follow a systematic literature review process that involves two steps: plan the literature review process, then follow the literature review plan (Calderón, Ruiz, 2015). We conduct a Boolean search of key career sustainable terms (see Table 1) and you searched across over 170 databases, including the following electronic databases such as ISIWeb of Science, Scopus, and SpringerLink. After searching the entire databases (e.g., everywhere), we narrow our Boolean search to filter in those articles from peer-reviewed journals. We then search only in the title of the publications of peer-reviewed journals.

Table 1 Search terms

Search Actions	Results Returned
1. Search “sustainable career” in EVERYWHERE	589
2. Filter for results from only PEER-REVIEWED JOURNALS	302
3. Search “sustainable career” in TITLE	12

We follow the Calderón and Ruiz (2015) systematic literature review process and applied inclusion and exclusion criteria (see Table 2) to guide the quality of our review. One might be surprised that only 12 journal papers were found with the term “sustainable career” in their titles.

Table 2 Inclusion and exclusion criteria

Criteria	
Inclusion Criteria	Publications that are related to career sustainability Publications that are related to elements of the Sustainable Project-Oriented Career Publications that were peer-reviewed
Exclusion Criteria	Publications that are did not have full-text available Publications that were not in English Publications that incidentally referred to elements of the Sustainable Project-Oriented Career

We then read the publications identified in Step 2, Table 1.

At some point in our careers, we were hired or brought onto a project team; we had the necessary competencies to add value. However, with time comes unpredictability, change, and new technology; not all project participants have kept up with advances and are at risk of not being selected for future projects if they do not have the right skills (e.g., their PMTQ is weak). What has to happen for career continuity? Is there such a thing as a sustainable project-oriented career (SPOC)?

Sustainable careers are becoming an increasingly pronounced concern for many as evidenced in the recent growth of research papers in scientific journals and conferences (De Vos et al., 2018). Indeed, even the meaning of career is in flux as we see more workers adopt a subjective view of career success rather than the more traditional view of career success through hierarchical progression (De Vos, Van Der Heijden and Ijm, 2017). One emerging career sustainability model incorporates agency theory from psychology (the individual obeys the organization in exchange for the organization taking responsibility for their actions); it brings together the dimensions and indicators of career sustainability (De Vos et al., 2018). The De Vos career sustainability model begins with the concept of time in that sustainability is related to what happens over one's career to protect and foster human and career development. We have modified the model to substitute a project-oriented career occurring over time. It is over time that we can better assess sustainability rather than during a discrete moment of analysis. We have modified this model to specifically explain a project-oriented approach, rather than a psychological approach to career sustainability.

The key modification to this career sustainability model (see Figure 2) is to replace the individual's agency modeling perspective with a person in a project-oriented career, working over time on a series of projects. In project-oriented organizations, a person may temporarily join an organization to perform project work, and then leave the organization upon completion of that work. However, some join an organization, and then stay for a series of projects, and then leave the organization (Huemann, Kegan and Turner, 2007). It is this concept of a person working in a series of projects that displaces psychological concepts related to career sustainability.

Fig. 2: Sustainable Project-Oriented Career

When one has a project-oriented career, and one works in a series of projects, the notion of career sustainability may eventually be considered. Career sustainability is indicated by three elements:

- i) *Productivity*, where the individual performs successfully in their current role as well as having a high potential for future employability. New joiners and existing workers may need to learn new skills to complete tasks.
- ii) *Health*, where a holistic and comprehensive view of health fits with the demands of one's career. With time, health can change: workers begin jobs and initially meet the

- demands of a job, but with age, one may be less capable (e.g., a job in construction where it becomes more difficult with age to complete tasks requiring manual labor).
- iii) *Happiness*, where the subjective elements relate to holistic satisfaction and feeling successful in one's career – past and present, and one's life outside the career occur.

An important concept is a fluid fit between these three career sustainability indicators: all three may be in flux and impact each other over time (De Vos et al., 2018). Thus, a project participant works in a series of projects over their career, and if the person has the right mix of success, health and productivity over time, that person has had a sustainable career.

5.3.1 Sustainable Career Turbulence

During one's career, there is the notion that chance events (positive or negative) can occur that alter career trajectory; Akkermans, Seibert and Mol (2018) refer to this as career shocks. The worker has control over some shocks like a decision to get pregnant that can impact their career. However, there are some shocks that the worker has less control such as when a person is made redundant or promoted to a position with more responsibility requiring more effort. These career shocks vary in intensity (moderate to severe), valence (positive or negative effects), frequency, and duration (De Vos et al., 2018). These career shocks may also be predictable or unpredictable, as well as originate from multiple sources such as geopolitical, environmental, organizational, interpersonal and family-oriented (Akkermans, Seibert & Mol, 2018). Given enough time, most working people face a career shock; how a person reacts or indeed, plans for the career shock, impacts career sustainability. In this paper, we use the term "turbulence" rather than shock, since we can often avoid the ill-effects of turbulence, whereas shocks imply less control. Therefore, we substitute career turbulence for career shocks in our model. In Table 3, we identify examples of career turbulence from our systematic review of the literature.

Table 3 Turbulence in sustainable careers

Author	Year	Empirical	Focus	Turbulence
Iles	1997	Opinion	Sustainable career development of high-potential employees	Acceleration of organizational restructuring, downsizing, outsourcing and layering
Stronach	2010	N=14, mixed	Career sustainability of Indigenous Australian boxers	Lack of mentoring
Asuquo	2013	N=210, surveys	How to build a sustainable career in environmental anthropology	Not staying connected with your community of practice
De Vos	2017	Opinion	Career sustainability in general	Longer careers due to delayed retirement, shorter and less predictable sequence of jobs, more alternative modes of work (e.g., part-time, contracting, etc.), fading boundaries between work and non-work, new ways of working, personal career development accountability, and rise of subjective career success
Van Driel	2017	N=18, interviews	Retaining Australia General Practitioner research leaders	Switching institutions, working in isolation, work-life balance, research as a hobby, lack of professional standing, managing dual careers, lack of research funding, low remuneration
Fournier	2018	N=61, interviews	Job loss of older Canadian workers	Globalization, increasing competition, more technology, unstable ties to work
McDonald	2018	Opinion	Creating sustainable careers	Automation, reduction of permanent jobs and a shift to temporary, contract and other forms of work, advanced technology, perceived work insecurity, job precariousness
Venkatraman	2018	Opinion	Improving career outcomes for technical education students	New technologies as a result of 4 th Industrial Revolution

Barthauer	2019	N=385, surveys	Career sustainability of German scientists	Role misfit, burnout
Chin	2019	N=2, case studies	Career sustainability of Chinese manufacturing workers	New technologies, new business models
Heslin	2019	Opinion	Role of learning mode in a sustainable career	Under-employment, lay-offs, unemployment
Jacobs	2019	N=1874, surveys	Role of networking for European freelancers	Organizations increasingly shift career development responsibilities to employees and other workers
Mutter	2019	N=21, interviews	Global mobility and the career of stay-at-home partner	Career planning and development procrastination, career coordination challenges with one's partner
Peters	2019	N=98, surveys	Effects of age-based stereotyping on older supermarket workers	Negative stereotyping of older workers
Spooner	2019	N=65, interviews	Influence of training on career intentions of future General Practitioners	Rising workloads, isolation, ill-prepared to manage periphery activities to one's profession (e.g., financial management)
Stauer	2019	N=5205, surveys	Career sustainability of Belgian workers across the lifespan	Finding and retaining work
Xiao	2019	N=614, surveys	Effects of stock ownership on career development in China	Stress due to changes

Thus, the Sustainable Project-Oriented Career model has the project participant working in a project-oriented organization either as a contractor or as an internal employee. This person works on a series of projects over time, and this is called a project-oriented career. During this career, there are most likely career shocks (positive and negative, that vary in intensity) that face the project participant. If the person makes the right decisions, then there will be a fit between the career and the career sustainability indicators of being successful, healthy and productive will be positive. If the person does not respond appropriately to career shocks, then a sustainable project-oriented career is in jeopardy. Increasingly, a self-directed or “protean career” is the responsibility of the individual rather than the organization (Akkermans, Seibert & Mol, 2018).

When we reviewed general literature for elements of turbulence, we find potential examples of career turbulence that could cause challenges for project-oriented people:

- The globalization of work and changes to how work is structured,
- Organizations reducing the amount of responsibility for workers' careers,
- Career planning and development procrastination,
- Increasing personal competency and threshold skill deficits, and
- Increasing stress and a work-life imbalance.

The literature also reveals things people should do who have sustainable careers; we refer to these enablers as sustainable career drivers.

5.3.2 Sustainable Career Drivers

There are three key areas of response a person can take to improve the probability they have a sustainable project-oriented career. Repeatedly, the notion of career renewal is highlighted as critical to a sustainable career (Adams, 2006; Valcour, 2013; Mayrhofer, 2016; McDonald and Hite, 2018). It has been long recognized that individuals might complete formal training or education in areas of demand (especially future demand) so that one's skills align with the needs of the organization (Skulmoski, 2001). Second, one's career is more likely to become sustainable if one is flexible and adaptable to new opportunities; simply, the more one can do, the more opportunities there will be to choose, resulting in career continuity (Valcour, 2013; McDonald and Hite, 2018). Finally, building upon work-life balance research, career sustainability is more likely if the career is integrated with one's home

life, the community and society (Adams, 2006; Osif, 2009; Overbaugh, 2011; Valcour, 2013; Witzig & Smith, 2019). We reviewed the literature for elements related to our Sustainable Project-Oriented Career model and uncovered potentially applicable sustainable career drivers (see Table 4).

Table 4 Sustainable career drivers

Author	Year	Empirical	Focus	Career Sustainability Drivers
Bennett	2009	N=239, surveys	Career sustainability for professional musicians and dancers	Develop small business skills (including marketing), teaching, adopt new technologies
Murray	2009	Opinion	Improving the Australian political class	Improve career sustainability through continuous training and professionalism
Singhvi	2010	Opinion	Building a sustainable career in science	Network, review papers, submit grants
Stronach	2010	N=14, mixed	Career sustainability of Indigenous Australian boxers	Pursue training and or education for renewal, work with mentors
Hall	2012	N=73, surveys	Career success while sustaining personal and family well-being	Understand that career success can be personal and subjective
Herman	2012	N=38	Motherhood and sustainable career in science, engineering, and technology	Develop a sense of entitlement for reduced working hours without forfeiting one's career
Watson	2012	N=36, interviews	Career sustainability of Victoria musicians	Develop a companion career related to the primary career, work with a mentor
Asuquo	2013	N=210, surveys	Employability of Nigerian youth	Learn continuously, network, be a team-player, be persistent, plan, take risks, be optimistic, be flexible
Siegel	2013	Opinion	Career sustainability of orthopaedic surgeons	Manage yourself and your business, develop good relationships with vendors, maintain an active status with your medical licenses
Montgomery	2014	Opinion	Mentoring graduate students and junior faculty	Work with a mentor over one's total career
Dahl	2015	N=10, interviews	Career sustainability of Swedish Leisure-time teachers	Develop profession-specific threshold competencies: developmental and group psychology, knowledge about social interaction, leadership and conflict management
Ochs-Balcom	2015	Opinion	Career sustainability of young American cancer researchers	Network broadly, develop cross-disciplinary collaborations
Beeching	2016	N=33, interviews	Career sustainability for professional musicians	Know your audience, role flexibility, perform multiple roles,
Hlanganipai	2016	N=85, surveys	Role of training and development in South African retail and wholesale managers	Plan training and development for your career
Rosenblum	2016	Opinion	Professional identity and the clinician-scientist	Have certainty of personal values, ambitions, abilities; develop resilience, self-esteem and self-perceived competence; have tolerance for ambiguity and complexity; have the ability to manage complexity; work with a mentor; pursue life-career balance
De Vos	2017	Opinion	Career sustainability in general	Plan personal career development rather than vertical advancement; manage work and non-work activities to minimize spillover; develop career competencies (self-awareness, self-management, etc.).
Van Driel	2017	N=18, interviews	Retaining Australia General Practitioner research leaders	Develop mentorships, alliances and, collaborations; take leadership training
De Vos	2018	Opinion	Career sustainability model	Be proactive

Ko	2018	Opinion	Career development for general surgeons	Be a competent generalist, but also specialize (dual careers)
Pajic	2018	N=314, surveys	Hungarian nurses career adaptability	Have a proactive and conscientious personality; be adaptable
Taponen	2018	N=2613, surveys	Career employment status and changes to due to asthma	Get advice from a counselor; manage your asthma treatment
Barthauer	2019	N=385, surveys	Career sustainability of German scientists	Develop a long-term focus and consider career mobility
Chin	2019	N=2, case studies	Career sustainability of Chinese manufacturing workers	Become resourceful, flexible and integrative, plan for renewal
Frie	2019	N=10, interviews	How "flexperts" renew their expertise	Gain the ability to make sense of new knowledge and skills, and have confidence for mastery
Goodwin	2019	N=28	Developing self-efficacy and career optimism in Australian creative industries	Join a community of practice
Heslin	2019	Opinion	Role of learning mode in a sustainable career	Be in the learning mode (always learning); apply self-directed and self-regulated learning
Hirschi	2019	N=2679, surveys	Sustainable careers and the impact of nonwork	Develop professional traits: agreeableness, extraversion and openness; and motives: curiosity and an interest in new experiences
Jacobs	2019	N=1874, surveys	Role of networking for European freelancers	Network proactively; take ownership for one's career
Kelly	2019	N=280, surveys	Role of leisure seriousness and sustainable careers	Engage in serious leisure; network while participating in leisure activities
Kotecha	2019	Opinion	General practitioner career sustainability advice	Learn continuously; join a community of practice; lead professional conversations; manage your well-being; shape the future (innovation and research)
Merritt	2019	Opinion	Building capacity of early career researchers	Develop threshold competencies (e.g., presentation skills, teamwork, etc.)
Mutter	2019	N=21, interviews	Global mobility and the career of stay-at-home partner	Negotiate and plan for career development; pursue flexible work agreements
Olsson	2019	N=15, interviews	Specialty choice of Swedish medical doctors	Be invited into your community of practice; fit in and contribute to your organization
Pajic	2018	N=314, surveys	Hungarian nurses career adaptability	Have a proactive and conscientious personality; be adaptable
Suhairom	2019	N=9, interviews	Sustainable careers for culinary professionals	Develop career-specific competencies (creative culinary), general competencies (business acumen, situational adaptability, self-development, strategic positioner, virtual collaboration, openness, emotional stability, agreeableness, conscientiousness, extroversion, sense of worth, and relationship management)
Bozionelos	In Press	N=334, surveys	Career sustainability of Hong Kong salespeople	Become a continuous learner, open and adaptable; manage change
Chudzikowski	In Press	N=34, interviews	Career sustainability of international management consultants	Conform and align early with one's organization; take ownership for own's career

Therefore, a sustainable career is more likely if one takes time for periodic renewal, one is flexible and adaptable to leverage new opportunities, and one's career is holistically integrated to achieve an acceptable work-life balance trajectory. We find in general career research literature, career sustainability drivers help guide workers and human resource management professionals to build and maintain sustainable careers. But what about sustainable careers in project management?

5.3.3 Sustainable Project-Oriented Careers

We systematically review the six, project management-related journals and search everywhere for the term “sustainable career,” and we find only one result (see Table 5). We also search for the term “career” everywhere, and then again, but only in the title; and find that career sustainability is a new term in the project management-oriented literature. We review these papers for their relevance to sustainable careers. We learnt that many of the results were due to the authors using the term “career” publication biography, rather than somehow relating to their research.

Table 5 Sustainable careers in project management literature

Journal	Sustainable Career Everywhere	Career Everywhere	Career in Title
International Project Management Journal	0	397	25
Project Management Journal	1	279	3
Project Management Research and Practice	0	4	0
Modern Project Management	0	1	0
International Journal of Construction Management	0	11	0
Journal of Engineering, Project and Production Management	0	10	0

Again, we find that within the project management literature, there were hints of sustainable career turbulence (see Table 6) and drivers (see Table 7).

Table 6 Turbulence in project-oriented sustainable careers

Author	Year	Empirical	Project Mgmt Focus	Turbulence
Bredin	2013	N=10, case study	Project managers and career models of Swedish project-oriented firms	Lack of job rotation to increase competency
Crawford	2013	N=9, interviews	Project career paths in Australia	Rise of contract work
Havermans	2019	N=21, interviews	Explore the motivation and experience of becoming a project manager	Frustrating processes, project administration, stress from conflict and work overload, changing work conditions, accountability without authority, politics
Huemann	2019	N=20, Interviews	Project manager career development and line manager relationships	Lack of project manager, career development support from line managers

Table 7 Project-oriented sustainable career drivers

Author	Year	Empirical	Project Mgmt Focus	Career Sustainability Drivers
Ahsan	2013	N=795, content analysis	Comparative analysis of competencies in job advertisements	Have the necessary competencies called for in the job advertisement
Bredin	2013	N=10, case study	Project managers and career models of Swedish project-oriented firms	Work for organizations that have career models to guide project managers' career development; project management training programs; offer organizational career development opportunities; and have a talent management program to build project management capacity; build personal project management competencies

Crawford	2013	N=9, Interviews	Project career paths in Australia	Show movement from simpler to more complex projects; work within collaborative and innovative project structures; engage with mentors
McKevitt	2017	N=207, surveys	Work identify and career satisfaction of IT project managers	Develop a high project management identity that can lead to career satisfaction
Gruden	2018	N=69, surveys	Influence of behavioral competencies on project performance	Develop behavioral competencies
Chen	2019	N=228, surveys N=10, interviews	Identify relevant project management competencies for Chinese construction companies	Follow a career path of increasing responsibility
Havermans	2019	N=21, interviews	Explore the motivation and experience of becoming a project manager	Have the necessary competencies to successfully manage the project; be aware that there may be conflicting expectations of superiors
Huemann	2019	N=20, Interviews	Project manager career development and line managers	Work with a mentor; have a buddy; and, participate in a community of practice
Wen	2019	N-163m survey	Project manager's competencies in the project closing phase	Get feedback at closeout as an input to career planning

When one reviews the project management literature, research and opinion articles about sustainable careers in project management do not exist; however, there is useful information related to sustainable project-oriented career turbulence and drivers. We believe that a perceptive project participant may see signs that their project-oriented career is unsustainable: that is, there may be “error messages” that one’s career is in trouble.

5.4. Error Messages Your Career is in Trouble

We offer error messages as indicators that one’s career may not be sustainable. Hartman (2000) developed a series of project management error messages designed to alert the project manager that something is wrong in their project. While no one sustainable project-oriented career error message may be the “nail in the coffin,” a sustainable project-oriented career is in jeopardy as error messages accumulate. After our literature review analysis, we have categorized these error messages into i) renewal opportunities, ii) adaptability, and iii) holistic integration (e.g., work-life balance).

5.4.1 Error Messages: Lack of Flexibility

- Assigned the same types of projects time after time,
- Haphazard and infrequent networking to uncover new opportunities,
- Did not get the promotion, job or contract,
- Shut out from normal activities (e.g., not invited or contracting meetings),
- Works on the same aspects of PM on all projects (scheduling for example, without cross-fertilization of competence in other knowledge areas),
- Does not contribute to professional activities outside the workplace,
- Does not promote the company he or she is working for in meetings or conferences outside of the organization,
- Does not update the work procedures according to the lessons learned or from reading new PM literature,
- Can only work with particular types of people,
- Not open to new ideas coming from subordinates or the project team.

These types of error messages may indicate that your career may benefit from being open to new opportunities to expand career flexibility.

5.4.2 Error Messages: Lack of Holistic Integration

- Clinically depressed,
- No longer exercise as often as you would like,
- Unplanned career absences,
- High annual leave balance,
- Does not take advantage of employer-offered stress avoidance or stress management schemes or employee assistance programs,
- Regularly works more than 50 hours per week,
- Regularly works at home after a full day of work for more than an hour or more than two evenings a week,
- Consistently works at least half a day on weekends for more than one weekend a month,
- Thinks about the undesirable things that occurred in the workplace,
- Stressed about the risks that are extremely unlikely to happen.

These types of error messages may indicate that your career may benefit from more work-life balance to have a more holistic integration.

5.4.3 Error Messages: Lack of Renewal Opportunities

- Long-time since your last formal class that had an assessment component,
- Infrequent professional development other than mandatory learning requirements (e.g., Fire Safety),
- Unfamiliar with Adaptive Project Management methods (Agile, Scrum, #NoProjects, Kanban, Lean),
- Curriculum vitae is out of date,
- Lack of professional institution membership (e.g., IPMA, PMI, etc.),
- Infrequently reads journals or magazines from your industry,
- Headhunters seldom contact you,
- Infrequent and irregular online professional social network participation (i.e., LinkedIn, ProjectManagement.com, GanttHead.com, etc.),
- Unfamiliar with emerging PM computer/ mobile applications. (i.e., Slack, Monday, WorkflowMax, Wrike, Trello, Mavenlink, Asana, etc.).

These types of error messages may indicate that a sustainable project-oriented career may benefit from an intervention such as renewal. At the same time that we see disruption and transformation in project management, we also see a great change in education and training that will be of interest to those who seek formal renewal.

5.5. Renewal: Innovations in Training and Education

One can renew their skill set through education and training. Training involves attaining specific and practical skills, usually through relatively short term learning experiences. Education involves more than theoretical learning in a classroom setting about a wide variety of topics gained over a relatively long term. Training often prepares a learner for the present while education prepares an individual for a future job (Rickman, 2004). While the focus of this paper is about preparing for the future by having a sustainable career, we do want to emphasize the importance of training in project management. Project-oriented participants will do well to review the wide variety of training opportunities offered by professional organizations like the International Project Management Association, Project Management Institute, Association for the Advancement of Cost Engineering International, British Computer Society, and others.

There has been a significant change to the higher education sector that better support successful renewal opportunities:

1. *Multiple Degree Options*: There is greater diversity within degrees so that a learner can find a better fit with the degree and their goals (Kofinas et al., 2017). Take the Master of Business Administration (MBA) degree, it was not long ago that an MBA was generic rather than specialized. Now, one can get an MBA in Project Management, MBA in Project and Operations Management, MBA in Business Project Management, etc.
2. *Combined Degrees*: Universities increasingly offering combined degrees (e.g. a Master of Project Innovation and Master of Project Management) where the learner graduates with two degrees in a shorter period since electives and core classes are shared between the two degrees.
3. *Accelerated Programs*: Universities are finding ways to deliver the full degree but within compressed time frames so that the learner achieves the learning outcomes but over a shorter period (Kitchener, 2017). For example, some universities offer classes over three rather than the typical two semesters per year, resulting in students graduating sooner.
4. *Intensive Classes*: Students can attend intensive classes (e.g., Thursday, Friday and Saturday) so that they can work most of the week and attend classes at the end of the week and on the weekend. Intensive classes improve access to educational renewal (Kofinas et al., 2017).
5. *Problem-Oriented*: More educational programs are supplementing theoretical learning with problem-oriented thinking supplemented with design thinking (Linton & Klinton, 2019); that is, they use newly acquired theory to solve problems. By doing so, learning is reinforced.
6. *Personalized Learning*: Students have more choice within courses to personalize learning and more electives to achieve their learning outcomes often through academic mentorship (Celuch et al., 2017).
7. *Interactive*: More and more, lectures are replaced with interactive learning (Kofinas et al., 2017) activities like discussions, role plays, peer to peer, board rotation, etc.
8. *Flipped Classroom*: The flipped classroom is a relatively new teaching approach where the traditional classroom activities are flipped with students complete assigned learning activities before they attend the class. The key advantage is that students in a flipped classroom, have more guidance with higher-order learning activities like analysis and evaluation, to improve learning.
9. *Outdoor Learning Spaces*: Universities are adding outdoor learning spaces to bring additional diversity to the educational environment (Cassidy et al., 2015). Rather than self-directed group learning and discussions occurring in classrooms, this type of learning environment is especially welcomed by adults who enjoy getting out of the classroom to learn.
10. *Workplace Readiness/Authentic Assessment*: Perhaps one of the largest changes is that many university programs have adapted their curriculum so that the content is more likely to be used in practice (Kofinas et al., 2017, Celuch et al., 2017). Students increasingly ask that they become workplace-ready as they progress through their program. This feedback has triggered a rethinking of how to assess student learning. This might mean a decline in exams and essays, and an increase in reports, problem-solving exercises, and other types of assignments to approximate what is done in the real world. More institutions are addressing workplace readiness and including authentic assessment (Wiewiora & Kowalkiewicz, 2019).
11. *Digital Badges*: Digital badges (micro-credentials) are an emerging online system to recognize accomplishments and competence (DiSalvio, 2016). An awarding organization offers a learning opportunity for a student. Successful students are awarded a digital badge to recognize their competence. The online badge includes key information such as badge name and description, awarding criteria, issuer, learning evidence, date issued, etc. Some universities issue digital badges (e.g. Design Thinker) after one or two subjects are completed to a certain standard (e.g. 65 percent). The student can add this digital badge to their CV and to an online platform like LinkedIn rather than waiting until graduation to show the fruit of their efforts.

Therefore, while there is great change occurring in the project environment, there are also increased opportunities and modes of learning for those project-oriented participants who are looking for renewal opportunities to boost their sustainable project-oriented career.

5.6. Conclusion

Long gone is the norm that one had a job for a lifetime – a stable, singular, and linear career. More project-oriented participants understand the simple concept of supply and demand: if one has competencies that are in demand, then one will likely remain employed. Organizations are becoming more project-oriented and recruit project participants often for particular jobs, and may retain them for additional project work or release them (Huemann, Keegan and Turner, 2007). Many work arrangements are fragile, given changes brought about to how we work (disruptive technologies brought about by the 4th Industrial Revolution) and how we organize for work (more outsourcing and contract work in the Gig Economy). Add work changes to career turbulence external shocks (e.g., family commitments or job promotion), then a project-oriented participant may feel out of equilibrium with an unsustainable project-oriented career. One may have a respected project-oriented job but may need to work long hours to meet deadlines, perhaps resulting in family conflict, stress and possible burnout. Such imbalance is usually not sustainable. One may also have a good project-oriented job but has not expanded or renewed their skill set to be able to contribute to projects involving disruptive technologies. Or they may have a singular career focus, rather than a composite career, with multiple, and perhaps entrepreneurial initiatives.

Career sustainability is complex, non-linear, and fluid; career sustainability is more likely if one addresses at least three key elements: i) holistic integration with one's life, ii) career flexibility and, iii) career renewal (De Vos, Van der Heijden and Akkermans, 2018). Compounding career planning and development is that one's personal goals change over time (De Vos, Van der Heijden and Akkermans, 2018); the sports car that was important in one's twenties becomes less important with marriage and the arrival of twin babies! During one's career, there may be changes in the degree of career fit and sustainability (Parasuraman, Greenhaus and Linnehan, 2000). Hirschi et al., (2019) advise to take a whole-life perspective when living a sustainable career; we might be guided by sustainable career drivers and unsustainable career error messages in order to take proactive planning and action. Unsustainable career error messages can inform us if any of these areas are weak. Career sustainability is of even greater importance to some given that we have an aging population that is expected to work longer in their careers (Stuer et al., 2019).

We conclude this paper with an overview of new trends occurring in education that make renewal more attractive and feasible for most. Project-oriented career sustainability is the individual's responsibility according to a protean view; there are positive actions one can take to have a sustainable career in projects.

The general area of career sustainability research is in its infancy (McDonald and Hite, 2018); some call for more research about the nature and dimensions of sustainable careers, indicators of a sustainable career, and general sustainable career theory building (De Vos, Van der Heijden and Akkermans, 2018). However, it appears to this research team that the research opportunities in project-oriented careers are broad and deep.

5.7. References

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