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Tourism megatrends, a literature review focused on nature-based tourism

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COVER PICTURE

Mountain bikers in Norway. Photo: Peter Fredman

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Foreword

This report is produced with funding from BIOTOUR – a four year research project with the objective to research and disseminate key conditions for future development of nature-based tourism in the Norwegian bio-economy that contribute to business innovation, community resilience and sustainable use of resources (www.nmbu.no/biotour). BIOTOUR is organized into five integrated work-packages; Nature-based tourism in the Norwegian bio-economy, Resource and product analyses, Market analyses, Tourism actors and management, and Innovative tourism solutions. The literature review presented here is part of the first work-package which studies nature-based tourism in the Norwegian bio-economy through sector analyses, trends, servicescapes and community resilience. Nature-based tourism trends will be studied with expert-panels in different countries using Delphi methodology, and the current literature review on megatrends provides an input to this part of the project. The review was planned and supervised by Professors Peter Fredman and Jan Vidar Haukeland, both at the Norwegian University of Life Sciences (NMBU). Literature was collected and synthesized by M.Sc. Yasmine Mounir Elmahdy with some supplements from Fredman. The introduction and conclusion sections are co-authored by all three authors.

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Executive summary

This report identifies and describes the most prominent exogenous factors affecting nature-based tourism (NBT). Megatrends and associated sub-trends were identified by means of a literature review and structured using the STEEP framework, including social, technological, economic, environmental and political drivers (Dwyer et al., 2009). Research papers published in English language journals were obtained by searching electronic databases of scientific and tourism journals (Google Scholar, Web of Science, Oria). A total of 151 research papers (including 109 peer reviewed journal articles) published between the years 1998-2017 were identified. The peer reviewed research papers were published in 55 different journals spanning a wide array of disciplines. Concluding remarks put the results in the context of Norwegian nature-based tourism.

Social trends

- **Population growth.** Will lead to an overall increase in participation in nature-based tourism. However, such unprecedented growths can also lead to an overuse of natural attractions negatively affecting natural resources.
- **Changes in household composition.** Family households are getting smaller. Sole-parent and single-person households becoming more prevalent. More income and discretionary time to travel and participate in recreational activities.
- **Ageing population.** Healthier, wealthier and more active older persons. Growingly interested in nature-based activities which accommodate their reduced physical abilities, i.e. less strenuous activities.
- **Health and well-being.** More emphasis on mental health; de-stressing and self-medicating. People increasingly seek out nature-based activities as a form of natural therapy/treatment.
- **Urbanization.** Urban congestion is threatening natural environments and leading to loss of landscape. People's need for green spaces is growing, thus, the demand for NBT is increasing as well.
- **Changing work patterns.** A reduction in physically demanding employment and household work leads to increased demand for physical activity during leisure time. The growing middle class with more flexible working conditions and an increasing

disposable time and income is allowing for more flexible travel plans and a desire to spend holidays in new and exotic natural destinations.

- **Gender.** Modern societies are more feminized and women highly influence the choice of leisure activities. Women are prone to choosing NBT activities and products of high convenience, quality and beauty. While men value challenging NBT activities (e.g. hunting, fishing, adventure activities).
- **Increasing cultural diversity.** Multicultural society is altering NBT visitor markets. Inflow of tourists with different cultural backgrounds, preferences and expectations, may lead to conflicts among them. New management interventions required in order to accommodate tourists' different needs and expectations, and prevent probable conflicts.
- **Values and lifestyles.** Today's tourist is money rich/time poor, individualistic, seeking unique, personalized and authentic experiences. Tourists are increasingly interested in participating in NBT activities as it helps them understand themselves better, achieve a sense of transformation and identity. Moreover, there is an increasing environmental awareness among them.

Technological trends

- **Transportation.** New technology is reducing the cost and the increasing speed of travel. Increasing accessibility to various tourist destinations. Schemes to reduce carbon emissions are expected to negatively impact destinations far from markets.
- **High-tech equipment.** Outdoor high-tech recreational equipment and clothing are providing recreationists with increased comfort, safety and access to nature destinations. Growth in participation in different types of NBT activities.
- **Information and communication technology (ICT).** Advanced technology allows tourist destinations to add value for their visitors and minimize operating costs. Electronic word-of-mouth becomes an increasingly important factor for destination image and travel behavior. *Social media* allow for more transparency between customers and suppliers. More competition among tourist destinations and greater consumer power. *Mobile technology* and expanded mobile service covering remote areas will encourage tourists to visit and experience new, unknown nature areas. For NBT, *Internet of Things* is expected to help in managing visitors flow in outdoor areas, improve traffic management and enhance the monitoring of fragile ecosystems.

Indoorization of outdoor activities and artificial recreations settings may signal a shift away from recreation in nature, but it is also argued that such services can stimulate participating in NBT.

Economic Trends

- ***Economic growth in developed economies.*** Economic growth, increasing income and disposable time in developed countries allow more people to spend more time and money on nature-based experiences.
- ***Economic growth in emerging economies.*** Economic growth in emerging economies of the BRIC nations, especially China and India, will significantly contribute to the expansion of tourism. This is leading to an alteration in the cultural and ethnic mix of tourists arriving to the EU. These tourists bring different behaviour, expectations and demands, e.g. Chinese tourists are found to be more interested in passive enjoyment of natural scenery (i.e. sightseeing) rather than active involvement in NBT activities.
- ***Sharing economy.*** Tourism services and businesses such as hotels, restaurants and tour operators are being challenged and gradually replaced by individuals who offer budget-friendly services such as accommodation, transportation, excursions and meals.
- ***Fuel costs.*** Despite temporary reductions, oil prices are expected to increase again which will negatively impact travel propensity via increased cost for flight tickets and introduction of fuel charges. Greenhouse gas mitigation strategies are expected to restrict and hinder future travel.

Environmental trends

- ***Climate change.*** Have a direct impact on NBT. Winter tourism is negatively impacted in regions such as Northern Europe and North America as winter becomes warmer and wetter; lower-altitude ski resorts are expected to face economical problems due to decline in snow cover and decline in visitation levels. While, capacity pressures will be created in higher-altitude resorts. Dog sledding and snowmobiling are also expected to face negative effects due to reduced snow cover. Climate change is leading to receding glaciers, hence, diminishing not only their aesthetic value but also their economical value associated with NBT activities such as sightseeing, trekking

and skiing. Climate change is also leading to coral bleaching, starfish outbreaks and environmental degradation which negatively impact dive and snorkel tourism.

- ***Land use and landscape change.*** Urbanization, rural depopulation, exploitation of land for road construction and energy production have all led to different changes to landscapes and loss of their aesthetic values. Natural landscapes are a main driving force of NBT. Hence, all such changes were found to have a negative impact on NBT via for instance reducing the attractiveness of tourist landscapes and the quality of tourists' experiences. Conflicts between various stakeholders (e.g. tourism, forestry, energy production) is also documented in the literature. *Protected areas* are often significant attractions in the nature-based tourism system, and more recent environmental policies in Scandinavia have emphasized the need to integrate nature-based tourism with protection of nature so that the two can be of mutual benefit.

Political trends

- ***Political turbulence, war and terrorism.*** Political turbulence in regions such as the Middle East, Africa and parts of Asia are predicted to diminish tourism flows overall but is predicted to enhance the attractiveness of tourist destinations perceived as 'safe'. Tourist attractions that offer settings (e.g. outdoor recreation settings) where large numbers of visitors are gathered are more prone to terror attacks and may need more security measures to ensure safety. Loss of natural heritage due to war and civil unrest is documented in the literature; examples of damaged national parks and ruined NBT industries in countries with political turbulence and terror attacks are also documented.
- ***Changes in border regulations.*** Changes in border regulations via the introduction and implementation of agreements such as the Schengen Agreement or China's Approved Destination Status 'ADS' have reduced border travel restrictions, creating huge tourism opportunities and traffic in several regions worldwide. China's ADS is expected to become the largest outbound market by 2020.
- ***Health risks.*** The continuing rise in international travel is a driving force in global emergence and spread of infectious diseases (e.g. Zika or Ebola virus). Future spread of persistent life-threatening diseases may make international travel be perceived as a personal risk. Future travel may be strictly regulated to prevent the spread of any virulent diseases among tourist destinations.

- ***Geopolitics.*** In today's globalised world, tourism is being used as an instrument to realize particular geopolitical goals. For example, sport events among Commonwealth member states as a unification tool. China's Approved Destination Status (ADS) as a projection of its soft power. Regional blocs such as North American and the European Union Free Trade Agreement also impact tourists' movement within these multilateral entities.

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Sammendrag

Denne rapporten identifiserer og beskriver de viktigste faktorene som påvirker det naturbaserte reiselivet. Megatrender og tilhørende sub-trender er blitt klarlagt gjennom en litteraturstudie og strukturert ved hjelp av et eget rammeverk, STEEP, som omfatter sosiale (Social), teknologiske (Technological), økonomiske (Economic), miljømessige (Environmental) og politiske (Political) drivkrefter (Dwyer et al., 2009).

Litteraturgjennomgangen baserer seg på systematiske søk i elektroniske databaser for vitenskapelige, engelskspråklige journaler (Google Scholar, Web of Science, Oria). I alt 151 forskningsbidrag (hvorav 109 fagfellevurderte tidsskriftsartikler) publisert i årene 1998-2017 ble identifisert, og disse er blitt publisert i 55 ulike tidsskrifter innenfor et bredt spekter av fagdisipliner. I konklusjonsdelen av rapporten er hovedresultatene satt inn i en norsk naturbasert reiselivskontekst.

Sosiale trender

- **Befolkningsvekst.** Vil føre til en generell økning i deltakelsen i naturbasert reiseliv. Men en slik akselererende vekst kan også føre til stort forbruk av naturattraksjoner, som igjen kan påvirke naturressursgrunnlaget på en negativ måte.
- **Endringer i husholdningenes sammensetning.** Familiehusholdningene blir mindre. Hushold bestående av én forelder eller aleneboende blir mer vanlig. Høyere inntekter og mer fleksibel tidsbruk øker mulighetene for å reise og delta i rekreasjonsaktiviteter.
- **Aldrende befolkning.** Bedre helse og høyere velstand blant aktive eldre personer. Økende interesse for naturbaserte aktiviteter som er tilpasset reduserte fysiske forutsetninger, dvs. mindre krevende aktiviteter.
- **Helse og velvære.** Mer vekt på mental helse; avstressing og selvmedisinering. Folk velger naturbaserte aktiviteter som en form for naturlig terapi/ behandling.
- **Urbanisering.** Urban vekst truer naturmiljøer og fører til tap av naturlandskap. Folks behov for tilgang til grønne områder øker, og dermed vokser også etterspørselen etter naturbasert reiseliv.
- **Endrede arbeidsmønstre.** Reduksjon i fysisk jobbkrav og mindre anstrengende husarbeid fører til økt etterspørsel etter fysisk aktivitet i fritiden. Den voksende middelklassen med mindre rigide arbeidsbetingelser og mer disponibel tid og inntekt

åpner for mer fleksibel reising og et ønske om å tilbringe ferien på nye destinasjoner med eksotisk natur.

- **Kjønn.** Moderne samfunn er mer feminiserte, og kvinner påvirker i stor grad valg av fritidsaktiviteter. Kvinner er tilbøyelige til å velge naturbaserte reiselivsaktiviteter preget av bekvemmelighet, kvalitet og skjønnhet, mens menn i større grad søker utfordrende aktiviteter som jakt, fiske og det som representerer spenning i naturomgivelser.
- **Økende kulturelt mangfold.** Det multikulturelle samfunnet endrer markedene i det naturbaserte reiselivet. Tilstrømmingen av turister med ulik kulturell bakgrunn, preferanser og forventninger kan føre til konflikter mellom de ulike segmentene. Nye grep fra naturforvaltningen er påkrevd for å ivareta turistenes ulike behov og forventninger, og forhindre konflikter.
- **Verdier og livsstiler.** Dagens turist er rik på penger men fattig på tid, individualistisk, og søker unike, persontilpassede og autentiske opplevelser. Turister er i økende grad interessert i å delta i naturbaserte reiselivsaktiviteter; det hjelper dem til å forstå seg selv bedre, bidrar til en følelse av personlig forandring og uttrykker en form identitet. Videre er det en økende miljøbevissthet.

Teknologiske trender

- **Transport.** Ny teknologi reduserer reisekostnadene og øker reisehastighetene. Tilgjengeligheten til ulike turistdestinasjoner øker. Planer for å redusere karbonutslipp forventes å påvirke destinasjoner som ligger langt fra markedene, på en negativ måte.
- **High-tech-utstyr.** High-tech utstyr og avanserte klær gir friluftslivsutøvere mer komfort, høyere sikkerhet og lettere tilgang til naturområder. Bidrar til vekst i ulike former for naturbaserte reiselivsaktiviteter.
- **Informasjons- og kommunikasjonsteknologi (IKT).** Avansert teknologi gir turistdestinasjoner merverdi for besøkende og reduserer driftskostnader. Turistomtale i elektroniske medier blir stadig viktigere for reismålenes image og turistenes reiseatferd. *Sosiale media* gjør tilbyder-kundeforholdet mer transparent. Mer konkurranse mellom destinasjoner og større forbrukermakt. *Mobilteknologi* og flere mobile tjenester som dekker avsidesliggende områder, vil oppfordre turister til å besøke og oppleve nye, ukjente naturområder. For naturbasert reiseliv forventes utstrakt bruk av internett (*Internet of Things*) å kunne være til hjelp i forvaltningen av

turiststrømmer i naturområder, forbedre trafikkstyringen allment og raffinere overvåkingen av sårbare økosystemer. Mer tilrettelegging for aktiviteter innendørs (*indoorization*) og kunstig oppbygde arenaer kan signalisere et skifte bort fra rekreasjonsaktiviteter i naturomgivelser, men det er også argumentert for at slike nye tilbud kan stimulere deltakelse i naturbasert reiseliv.

Økonomiske trender

- **Økonomisk vekst i utviklede økonomier.** Økonomisk vekst, økende inntekter og mer disponibel tid i utviklede land gjør det mulig for flere å bruke mer tid på naturbaserte opplevelser.
- **Økonomisk vekst i utviklingsøkonomier.** Økonomisk vekst i BRIC-landenes utviklingsøkonomier, spesielt i Kina og India, vil i betydelig grad bidra til ekspansjon i reisevirksomheten. Dette fører til endringer i den kulturelle og etniske sammensetningen av turister som ankommer EU. Disse gjestene har annerledes turistatferd, forventninger og krav; kinesiske turister utviser større interesse for passiv nytelse av natur og landskap (sightseeing) framfor å engasjere seg i aktive naturbaserte reiselivsaktiviteter.
- **Delingsøkonomi.** Kommersielle foretak som hoteller, restauranter og turoperatører utfordres og blir gradvis erstattet av individer som tilbyr budsjettvennlige tjenester som overnatting, transport, utflukter og måltider.
- **Drivstoffkostnader.** Til tross for tidvise reduksjoner forventes oljeprisen å stige, noe om vil påvirke folks tilbøyelighet til å reise på en negativ måte på grunn av økte priser på flybilletter og introduksjon av ekstra drivstoffavgifter. Strategier for å hindre utslipp av drivhusgasser forventes å begrense/ hindre fremtidig reisevirksomhet.

Miljøtrender

- **Klimaendringer.** Har direkte påvirkning på naturbasert reiseliv. Vinterturismen vil bli negativt påvirket i regioner som Nord-Europa og Nord-Amerika ettersom vintrene blir varmere og våtere; lavtliggende skidestinasjoner forventes å få økonomiske problemer som følge av redusert snødekke og mindre besøk. Det vil bli press på kapasiteten i mer snøsikre, høytliggende områder. Hundekjøring og snøskuterkjøring forventes å bli negativt påvirket på grunn av mindre snø. Klimaendringer fører til at isbreene

trekker seg tilbake, noe som fører til at ikke bare deres estetiske verdi, men også økonomiske verdi knyttet til naturbaserte aktiviteter som sightseeing, brevandringer og skiturer, reduseres. Klimaendringene fører også til bleking av koraller og miljømessig degradering av marine områder som påvirker dykke- og snorklingsaktiviteter.

- **Arealbruk og landskapsendringer.** Faktorer som urbanisering, befolkningsnedgang i distriktene, eksploatering av arealer til veibygging og energiproduksjon har alle ført til ulike typer av endringer av landskaper og tap av deres estetiske verdier. Intakte naturlandskaper er en sentral forutsetning for naturbasert reiseliv. Derfor har de nevnte faktorene negative konsekvenser for naturbasert reiseliv ettersom attraktiviteten i turistlandskapene og kvaliteten på turistopplevelsene reduseres. Konfliktene mellom ulike interessenter (turisme, skogbruk, energiproduksjon) er også dokumentert i litteraturen. *Verneområder* er ofte viktige attraksjoner i det naturbaserte turismesystemet, og nyere miljøpolitikk i Skandinavia understreker behovet for å integrere det naturbaserte reiselivet med områdevern til gjensidig nytte for begge parter.

Politiske trender

- **Politisk turbulens. Krig og terrorisme.** Politisk turbulens i regioner som Midtøsten, Afrika og deler av Asia forventes å redusere turiststrømmene i alminnelighet, men vil kunne øke attraktiviteten til destinasjonsområder som anses som trygge. Turistattraksjoner som tiltrekker seg store ansamlinger av besøkende (f.eks. kjente naturattraksjoner), er mer utsatt for terroranslag og vil ha behov for sikkerhetstiltak. Tap av naturarv på grunn av krig og uro er påpekt i litteraturen, og eksempler på ødelagte nasjonalparker og ruinerte naturbaserte reiselivsnæringer i land med politisk turbulens og terror er også dokumentert.
- **Endringer i grensekontroller.** Endringer i grensekontroller gjennom introduseringen og implementeringen av avtaler som Schengen-samarbeidet eller Kinas utreisebestemmelser (Approved Destination Status, 'ADS') har redusert grenserestriksjoner og utløst enorme reisemuligheter i flere regioner rundt om i verden. Kinas ADS er forventet å bli verdens største utreisemarked i 2020.
- **Helserisiko.** Den vedvarende økningen i internasjonal reisevirksomhet er en drivkraft i oppblomstringen og spredningen av infeksjonssykdommer (Zika eller Ebola-virus).

Fremtidig spredning av vedvarende livstruende sykdommer kan bidra til at internasjonal reisevirksomhet oppfattes som en personlig risiko. Reiseaktiviteten kan tenkes å bli strengt regulert for å unngå spredning av virussykdommer i turistområdene.

- **Geopolitikk.** I dagens globaliserte verden er turismen et redskap for å nå visse geopolitiske mål. For eksempel er felles sportsbegivenheter i Samveldenasjonene et instrument for å ivareta samholdet blant disse nasjonene. Kinas ADS er et politisk verktøy. Regionale blokker som den nordamerikanske og europeiske frihandelsavtalen påvirker også turistbevegelsene.

Rapporten er finansiert av BIOTOUR – et fireårig forskningsprosjekt der formålet er å identifisere nøkkelbetingelser for videreutvikling av naturbasert reiseliv i norsk bioøkonomi som sikrer næringsutvikling, robuste lokalsamfunn og bærekraftig ressursbruk (www.nmbu.no/biotour).

Introduction

Nature is a major attraction element for the tourism industry, and nature-based tourism (NBT) is perceived as one of the more rapidly expanding sector within tourism in Northern Europe and elsewhere (Bell, Tyrväinen, Sievänen, Pröbstl, & Simpson, 2007; Fredman & Tyrväinen, 2010; UNEP, 2011). Research on nature-based tourism supply in Norway and Sweden estimate there are approximately 3000 service providers in each country, offering a variety of different products and services (Fredman and Margaryan, 2014; Stensland et al., 2014).

Nature-based tourism is, however, characterized by close interactions between visitor experiences and natural resources, and the production system involves, directly or indirectly, also other natural resource users, land-owners, nature conservation organizations etc. which through their activities may impact the nature experience. There is also typically a high dependence on resources with public good characteristics (e.g. attractive landscapes, clean air and water) in nature-based tourism and many products are associated with some degree of uncertainty (e.g. unstable weather conditions, probability of spotting wildlife etc.).

Nature-based tourism and associated natural resources are affected by several different megatrends (Benckendorff, 2006; Buckley, Gretzel, Scott, Weaver, & Becken, 2015; Dwyer et al. 2008; Scott & Gössling, 2015). Population growth, redistribution of wealth and work patterns, new technologies, urbanization, political instability and conflicts, climate change and its consequences, and different forms of social fashion influence tourists' travel choices; who wants to travel where, to do what, for how long, and at what price (Buckley et al., 2015)? Hence, the aim of this report is to identify and present the broad exogenous trends affecting tourism in general and nature-based tourism in particular. Following the argumentation of Dwyer et al., (2009, p.64): Social, technological, economic, environmental and political drivers are the "*changing realities that make up the strategic context within which long-term tourism industry policies, planning and development are made*", and the ability to recognize and deal with such changes is a key element of a successful tourism industry (Dwyer et al., 2008).

Megatrends

For this report, megatrends are presented using the STEEP framework: Social, Technological, Economic, Environmental and Political trends (Benckendorff, 2006; Dwyer et al., 2009; Evans, Campbell, & Stonehouse, 2003). A *megatrend* is a change that influence many aspects

of society and have a long-lasting effects. Megatrends also drive other trends, which are referred to as *sub-trends* in this report. STEEP analyses is utilised to categorise different trends and forces of change on a general level, decomposing the macro-environment into the five categories: Social, Technological, Economic, Environmental, and Political (Dwyer et al., 2009; Evans et al., 2003).

The STEEP framework is effective in identifying and managing some of the most important drivers of change that will influence tomorrow’s travel and tourism trends. As illustrated in Figure 1, the framework examines the ways in which different trends would impact tourist attitudes and values, and the management of tourism enterprises and tourist destinations including the development of new services and products. The six segments, economic, political, environmental, technological, demographic, and social, affect three major tourism facets – “the destination (destination management), enterprise (enterprise management) and tourist (values, needs, flows)” (Dwyer et al., 2009). Furthermore, the tourist on one hand and the enterprise and destination on the other directly impact the development of new products. The spheres of influences are graphically illustrated in circular mode, signifying the dynamism of the situation (Dwyer et al., 2009).

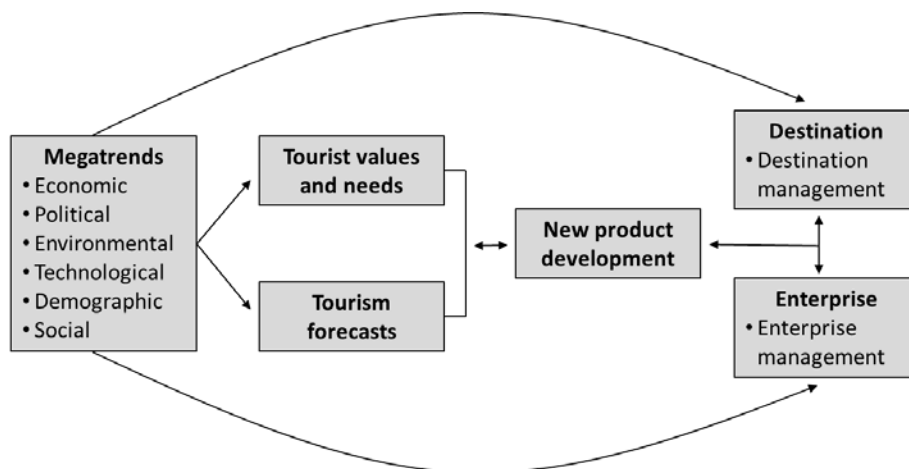


Figure 1. Influence of megatrends on tourism. Source: Dwyer et al. (2009).

Methods

Research papers published in English language journals on the megatrends impacting the tourism industry and associated natural resources were obtained by searching electronic databases of scientific and tourism journals such as: Google Scholar, Web of Science and the discovery tool/search engine Oria from November 2016 to January 2017. The automated search spanned the years from 1998 to 2017 and keywords used for the search were 'tourism', 'nature-based tourism', 'ecotourism' or 'outdoor recreation' and a combination of the following terms; 'megatrends', 'trends', 'drivers', 'impact', 'effect' and 'influence'.

Papers describing the results of original research on the megatrends impacting tourism including nature-based tourism, review papers and serious consultancy reports were all included in this study. Reference lists of recent articles identified were also used to find additional relevant academic papers. In drawing upon the identified published literature, especially the more recent literature, current megatrends and sub-trends which could have significant impacts on the tourism industry in general and nature-based tourism in particular were identified and categorized.

From each paper identifying megatrends and examining their impacts on tourism and nature-based tourism, the following information was recorded in a database (Table 1, Appendix 1): author(s), year of publication, country where the research was conducted (study location), journal published in, main megatrends and sub-trends.

A total of 151 research papers (including 109 peer reviewed journal articles) published between the years 1998-2017 were identified and used in this report (Table 1, Appendix 1). The different types of publications utilised in the report are presented in Table 2. The number of studies examining trends impacting tourism (including NBT) in different countries are summarized and presented in Table 3.

The peer reviewed research papers were published in 55 different journals spanning a wide array of disciplines; the disciplines and journal distribution of the 109 journal articles assessed in this study are summarized and presented in Table 4.

Table 2. Types of publications used in this report

| Type of publication | Number |
|----------------------------|---------------|
| Journal articles | 109 |
| Consultancy reports | 21 |
| Conference papers | 10 |
| Book chapters | 5 |
| Theses | 2 |
| Web articles | 4 |
| <i>Total</i> | <i>151</i> |

Table 3. The number of studies (1998 – 2017) examining trends impacting tourism (including NBT) in different countries

| Country | Number of studies |
|-----------------------------|--------------------------|
| General/No specific country | 51 |
| Finland | 13 |
| Norway | 13 |
| Australia | 9 |
| Japan | 9 |
| USA | 9 |
| China | 7 |
| New Zealand | 5 |
| Sweden | 5 |
| UK (General) | 3 |
| Austria | 2 |
| Canada | 2 |
| Iceland | 2 |
| Nepal | 2 |
| Poland | 2 |
| Brazil | 1 |
| Cyprus | 1 |
| Czech Republic | 1 |
| England | 1 |
| Germany | 1 |
| Iran | 1 |
| Korea | 1 |
| Netherlands | 1 |
| Philippines | 1 |
| Portugal | 1 |
| Russia | 1 |
| Scotland | 1 |
| Slovakia | 1 |
| South Africa | 1 |
| Thailand | 1 |
| Vanuatu | 1 |
| Wales | 1 |

Table 4. Discipline and Journal distribution of the 109 journal articles assessed in this study

| Discipline | Journal titles | No. of papers | Discipline total |
|--------------------------------|---|----------------------|-------------------------|
| Tourism and Recreation | Scandinavian Journal of Hospitality and Tourism | 12 | 71 |
| | Journal of Sustainable Tourism | 10 | |
| | Tourism Management | 8 | |
| | Tourism Recreation Research | 7 | |
| | Journal of Travel Research | 5 | |
| | Annals of Tourism Research | 4 | |
| | International Journal of Tourism Research | 4 | |
| | Journal of Vacation Marketing | 4 | |
| | Tourism Planning & Development | 3 | |
| | Journal of Outdoor Recreation and Tourism | 2 | |
| | Current Issues in Tourism | 1 | |
| | European Journal of Tourism Research | 1 | |
| | Journal of Destination Marketing and Management | 1 | |
| | Journal of Ecotourism | 1 | |
| | Journal of Hospitality Leisure Marketing | 1 | |
| | Journal of Tourism Futures | 1 | |
| | Leisure Studies | 1 | |
| | Tourism Business Frontiers | 1 | |
| | Tourism Economics | 1 | |
| | Tourism Geographies | 1 | |
| Tourism in Marine Environments | 1 | | |
| Tourism Review | 1 | | |
| Business | Journal for Global Business Advancement | 1 | 4 |
| | Journal of Business Research | 1 | |
| | Journal of Business Strategy | 1 | |
| | Quarterly Journal of Business Studies | 1 | |
| Transport Geography | Geoforum | 1 | 4 |
| | Geographia Polonica | 1 | |
| | Journal of Spatial and Organizational Dynamics | 1 | |
| | Journal of Transport Geography | 1 | |
| Health | Environmental Health and Preventive Medicine | 2 | 9 |
| | Eurosurveillance | 1 | |
| | Evidence-Based Complementary and Alternative Medicine | 1 | |
| | Journal of Environmental Psychology | 2 | |
| | Journal of Epidemiology and Community Health | 1 | |
| | Journal of the Royal Institute of Public Health | 1 | |
| | The Lancet | 1 | |
| Landscape and Land use | Land Use Policy | 2 | 7 |
| | Scandinavian Journal of Forest Research | 2 | |
| | Forest Policy and Economics | 1 | |
| | Landscape and Urban Planning | 1 | |
| | Living Reviews in Landscape | 1 | |

Table 4. (continued)

| Discipline | Journal titles | No. of papers | Discipline total |
|-------------------|---|----------------------|-------------------------|
| Biology | Plos Biology | 2 | 4 |
| | Biological Conservation | 1 | |
| | Conservation Letters | 1 | |
| Social | Journal of Contemporary China | 1 | 2 |
| | Journal of Social Issues | 1 | |
| Energy | Energies | 1 | 3 |
| | Journal of Cleaner Production | 2 | |
| Other | International Journal of Biometeorology | 1 | 5 |
| | Journal of Environmental Management | 1 | |
| | PLoS one | 1 | |
| | Sustainable Development | 1 | |
| | WIREs Climate Change | 1 | |

Social trends

The social factors likely to influence tourism and travel in the coming years can be divided into three subcategories: demographic changes, social values, and lifestyles (Dwyer et al., 2008). Some of the most pervasive social trends influencing tourist attractions include:

Population growth. A growing world population will impact tourism in several ways (Dwyer et al., 2008; Dwyer, Edwards, Mistilis, Roman, & Scott, 2009; Enger, Sandvik, & Kildal Iversen, 2014; Hajkowicz, Cook, & Boughen, 2013; McKee, Sciulli, Foose, & Waite, 2004; Scott & Gössling, 2015; UN, 2015), and more than 95% of the population increase will take place in developing countries (Dwyer et al., 2008). While there will be a further immense increase in world population overall, declining birth rates will cause a significant drop in population in developed countries (Becken & Job, 2014; Dwyer et al., 2008). However, migration and other movements of populations across continents as more recently has been the case could result in new population dynamics. Nevertheless, the overall ongoing population growth (in combination with more people having social and economic opportunities to travel) can lead to irreversible and inevitable destruction of the earth's natural resources and is perceived as one of the greatest threats to species biodiversity and ecosystem function (McKee et al., 2014). It is also causing a number of challenges to nature-based tourism via impacting and altering tourism markets and tourist behaviour (e.g. in national parks and other protected areas (PAs)).

Crowding is identified as an increasingly dominant phenomenon at certain PA locations with its perception depending not only on the number of encounters but also the motivation of the visitors pursuing a specific nature experience and on the expectations of use levels (Becken & Job, 2014). For instance, in the United States, White et al.'s (2016) report on outdoor recreation trends on federal lands found that population growth and density in the vicinity of recreation areas is expected to cause crowding onsite, which will lead to a reduction in the quality of nature-based experiences. A study conducted by Lyon, Cottrell, Siikamäki, and Van Marwijk (2011) showed that high visitor pressure in Oulanka National Park in Finland has negatively affected the park's natural resources including critical habitats of endangered species. It has also led to severe visible erosion and the occurrence of trampling impacts. In Canada, Scott, Jones, and Konopek (2007) found that future increases in visitor levels in the Canadian Rocky Mountains, specifically Waterton Lakes National Park have positive implications in the form of higher revenues for the park, and will also benefit the

communities around the park (e.g. by selling products and providing services to tourists). However, increased visitor levels have negative implications as well; as it will contribute to higher operating costs, lead to visitor-related environmental pressures and place additional stress on existing park infrastructure such as trails, roads, waste management and water systems.

Changes in household composition. In contemporary western society, households are diversifying away from the traditional ‘nuclear’ family. Family households are getting smaller and sole-parent and single-person households are becoming more prevalent, partially due to higher divorce rates and low fertility rates (Dwyer et al., 2008). Young couples now have more income and discretionary time, due to the lack of children or the rise in the average age of women at childbirth. Couples and singles may regard travel as an opportunity to interact and meet with new people. Smaller family size means that the family members have more money to spend on recreation and greater flexibility in their activities (Benckendorff, 2006).

Tangeland and Aas (2011) found that household composition distinctly affected tourists’ choices of nature-based tourism activities. Having young children in the household negatively affected participation in activities such as hunting, backcountry hiking and skiing, and adventure activities, this is believed to be due to the unavailability of leisure time and that these activities are judged as not child-friendly (Tangeland, Aas, & Odden, 2013). On the other hand, the reduction in the number of nuclear families is believed to lead to a decrease in demand for activities that are family and child-friendly, while the rising numbers of singles and couples is expected to cause an increase in demand for activities which include risk and/or challenge attributes (Tangeland et al. 2013). Thus, it may be necessary for tourist attractions to reassess the types of packages and services that they offer (Benckendorff, 2006).

Ageing. Longer life expectancy and declining fertility rates are leading to an ageing population (Becken & Job, 2014; Bell et al., 2007; Dwyer et al., 2008; Dwyer et al., 2009; Enger et al., 2014; Frost, Laing, & Beeton, 2014; Hajkowicz et al. 2013; Scott & Gössling, 2015; UN, 2015). This trend is less marked in developing countries and especially pronounced in developed ones (Dwyer et al., 2008; Hajkowicz et al. 2013). Europe, North America and Japan, historically the principal countries of origin for international tourism, exhibit swiftly ageing demographic profiles indicating population stagnation (Buckley et al.,

2015). By 2020, one in eight people will be 60 years or older (Dwyer et al., 2008; UN, 2015). Significant medical advances in developed nations have contributed to this increased longevity, and older people seem more active, in good health and to lead productive lives (Dwyer et al., 2008; Frost et al., 2014).

This new generation of elderly is healthier, more affluent and growingly interested in participating in nature-based activities (Wall-Reinius, & Bäck, 2011). Older tourists are seeking more active holidays; they participate in sporting holidays and head to the mountains and lakes (ABTA, 2015). According to the Amadeus report, senior tourists are seeking worthwhile experiences; they value ‘sight-doing’ versus sightseeing which means being active, discovering, learning, and finding excitement in new experiences versus owning things (Amadeus, 2014). They care more about being comfortable and require highly personalized services that fit their needs, interests and expectations. Health and wellness travel is popular among this segment and they value spending more time in natural environments in order to engage in physical and spiritual activities (Amadeus, 2014; Tutek, Gebbie, Chan, & Durand, 2015).

Age composition conveys the displacement and segment size (Enger et al., 2014); the presence of what is known as the ‘mature market’ or ‘senior market’ will cause a change in demand for certain types of outdoor recreational activities; older tourists will need services and products that accommodate their reduced physical abilities and other ageing needs (Bell et al., 2007; Dwyer et al., 2008; Enger et al., 2014; Glover & Prideaux, 2009; White et al., 2016). For example, Wall-Reinius and Bäck (2011) have found an increase in the importance of accommodations, services, marked hiking trails, and accessibility among older hikers. Older tourists will be attracted to less strenuous activities and less interested in dangerous, active, outdoor recreational activities (Moisey & Bichis, 1999; Wight, 2001). They may choose to participate in activities such as visiting national parks, walking, wildlife tours (Williams & Shaw, 2009) and organized cruises, while the demand for activities such as skiing and also roundtrips by car are expected to decline (Enger et al., 2014).

Health and well-being. There is a growing consensus that mental and physical well-being matter. People are increasingly becoming more apprehensive about their general health and well-being, and more emphasis is being placed on de-stressing and self-medicating. The aim will be to prevent rather than cure an illness and people will adopt more holistic approaches to health care (Frost et al., 2014). More people will continue seeking out natural therapies and

treatments, including sunshine, fresh air and opportunities to exercise (Dwyer et al., 2008; Frost et al., 2014). Studies have found that visits to urban green environments such as urban parks and urban woodlands promote urban visitors' health and wellbeing; it positively affects their perceived stress relief (Tyrväinen et al., 2014). Moreover, urban parklands are positively related to the level of physical activity (Pietilä et al., 2015), via providing individuals with places for sport activities such as daily exercise (e.g. walking and jogging) and team sports (White et al., 2016).

Studies confirm that there is an increase in the number of individuals who participate in sport activities (leisure and recreational activities) (Venkatraman & Tyler, 2011). According to Higham and Hinch (2002), the democratization of sport has led to mass participation in many sport pursuits for various reasons including fitness and health. Both younger and older generations are now seeking more active holidays. Planning and taking sporting/activity holidays and adventure/challenge holidays is a driving trend especially among younger (16-24 and 25-34 years old) travellers. In addition to travelling to participate in sport activities, travelling to see major sport events such as Euro 2016 in France and the Olympics in Rio de Janeiro is another trend driven by tourists aged 25-34 and is a very much male dominated trend (ABTA, 2015).

A study conducted by Holden and Sparrowhawk (2002) examined nature tourists' intrinsic motivations, namely trekkers' motivations to visit Annapurna, Nepal. They found that trekkers were motivated by a desire to enjoy nature, mental relaxation and calmness. Furthermore, they were motivated by a need to meditate, reflect and by the overall spiritual elements of the mountain environment.

Korpela, Borodulin, Neuvonen, Paronen, and Tyrväinen (2014) found evidence of the significance of restorative experiences as a mediator between participating in nature-based tourism activities and emotional well-being. A number of studies examined the health benefits of "Shinrin-yoku"; a Japanese term which means forest-air bathing and walking. The findings revealed that Shinrin-yoku may increase positive emotions (Lee, Park, Tsunetsugu, Kagawa, & Miyazaki, 2009; Tsunetsugu, Park, & Miyazaki, 2010), aid autonomic nervous system relaxation (Lee et al., 2009; Park et al., 2008; Tsunetsugu et al., 2013) and reduce stress levels (Lee et al. 2009; Morita et al., 2007; Tsunetsugu et al., 2010; Tsunetsugu et al., 2013). It is also effective in decreasing blood glucose levels in diabetic patients (Ohtsuka, Yabunaka, & Takayama, 1998; Tsunetsugu et al., 2010), reducing negative psychological

symptoms and promoting cardiovascular relaxation in young adults (Lee et al., 2014; Tsunetsugu et al., 2010). Moreover, forest bathing trips may also have a preventive impact on the generation and development of cancer via increasing Natural Killer (NK) activity which is mediated by an increase in levels of intracellular anti-cancer proteins and numbers of NK cells (Li, 2010; Tsunetsugu et al., 2010).

Konu (2015) tested and developed forest-based wellbeing tourism products in Finland via involving Japanese tourists as a potential target group. The findings showed that Japanese tourists ranked activities that provided them with positive emotional experiences and that were connected to nature and the forest such as hiking, kayaking and guided tours (e.g. “nature as an energizer” and “silent walks”) as the most appealing activities. Hence, it is important to market NBT products as products that allow tourists to relax, be in the moment and feel personal wellbeing. Similarly, Konu, Tuohino, and Komppula (2010) examined Eastern Finland’s potential for providing tourists with well-being tourism products via utilizing its rich and pure natural resources such as aquatic environments and lakes. They introduced a concept of Lake Wellness experience product which aims at fulfilling tourists’ need to feel comfort, relaxation and sense the lake. They argue that this can be achieved via the provision of services and/or activities of mind and spirit, and self-development, health promoting services and comfortable accommodation by a network of entrepreneurs and professional staff who would market Eastern Finland as a Lake Wellness destination.

Urbanization. There is a global trend towards urbanization, nearly 70 percent of the developed world living in urban areas. Urbanization is rapidly growing and is projected to continue at this pace through 2050 (Frost et al., 2014; UN, 2014). The growing urban congestion in both developing and industrialized worlds leads to the need and desire to escape crowding and pursue nature, peace and quiet. This has been confirmed by Holden and Sparrowhawk’s (2002) study, which found that the majority of trekkers (originally from urbanized areas) were motivated by a sense of *escapism* to participate in nature-based activities via visiting Annapurna in Nepal.

People increasingly demand and are interested in peaceful scenery and green spaces to unwind. Thus, the demand for nature and nature-based tourism is expected to continue growing (Buckley, 2000; Buckley et al., 2015; Curtin, 2005; Dwyer et al., 2008; Enger et al., 2014; Fredman & Tyrväinen, 2010; Frost et al., 2014; Uusitalo, 2010). However, urban sprawl is threatening natural environments due to the continuous loss of landscape caused by

progressive industrial and urban encroachment, as there is an intense pressure to clear land for housing, infrastructure, and food crops to feed the growing populations (Frost et al., 2014; Dwyer & Edwards, 2000). Moreover, the decline in natural land base due to urbanization is expected to reduce participation rates for outdoor recreational activities that require large areas of land such as off-road driving, visiting primitive areas, and hunting (White et al., 2016).

Changing work patterns. In today's post-industrial and mechanized societies, there is an apparent reduction in the levels of physical activity related to employment and household work. Hence, leisure time physical activity became an essential constituent in leading a healthy and active life (Popham & Mitchell, 2006). Cynarski and Grzywacz (2016) confirm that tourism is reflecting today's post-industrialised and post-modern societies, where tourists are acting in an environmentally active and healthy way of spending their leisure time. The new generation of tourists is searching for leisure activities and tours that provide them with a wealth of experience, entertainment and education. Moreover, an increasing number of individuals are participating in recreational physical activities such as yoga, capoeira, martial arts and cycling.

According to Dickinson and Peeters (2014), the rise of the Network Society along with the changing working patterns, particularly related to post-Fordist work practices; a shift to new information technology which allow for more flexibility and decentralized forms of work organizations have led some societies (e.g. Western societies) to experience time in a different way, referred to as timeless time or instantaneous time. Today, people are not willing to give up their goals, both family-related and personal ones. Workers are demanding more flexibility which may be blurring the boundaries between office and home. There is a growing trend in working from electronic home offices that are fully equipped and less routine attendance at a central workplace. This is causing a blurring of the distinction between leisure and work as well. Moreover, changing work patterns are also allowing for more flexibility of travel plans (Dwyer et al., 2008; Dwyer et al. 2009).

Gender. Modern societies are becoming more feminized and women now have significant influence on all the key consumption decisions including holidays and leisure activities (Benckendorff, 2006; Dwyer et al., 2008; Meng & Uysal, 2008). Studies show that when potential nature tourists assess nature-based destination choices, significant gender differences prevail about the perceived importance of destination attributes and travel values.

Women were found to put a higher importance on the beauty of natural scenery, services and products of high convenience and quality, and the relaxing recreational experience of the destination (Meng & Uysal, 2008). According to White et al. (2016), females are more likely to participate in activities such as visiting developed sites, swimming, equestrian and nature-viewing activities. On the other hand, men valued challenging nature-based activities that promote the idea of enjoyment, fun and a sense of accomplishment such as hunting, skiing, canoeing, hiking and fishing (Meng & Uysal, 2008). White et al. (2016) found that men are more prone to participating in backcountry activities, floating, fishing, hunting, motorized activities, and non-motorized winter activities. Similarly, Tangeland et al. (2013) found that males were more active in outdoor recreational activities such as hunting, fishing and adventure activities than females. They argue that such activities have a propensity to be perceived and experienced as masculine activities and males are generally more risk takers than females.

Increasing cultural diversity. Accepting immigrants and integrating them into a wider mainstream culture has caused populations in the host countries to become more culturally diverse. Increased cultural diversity creates several challenges for attraction operators. First, the inflow of new cultures may progressively alter domestic visitor markets, in regards to both visitor expectations and preferences. Secondly, international visiting friends and relatives (VFR) travel is encouraged by a multicultural society, consequently, the mix of VFR travellers to a particular destination may change as well (Benckendorff, 2006).

Wray, Espiner, and Perkins (2010) found that there is a cultural clash and tensions have arisen between locals and international visitors in some protected natural areas in New Zealand. International wilderness tourists were often seen as a threat to New Zealander's recreation opportunities due to differences in held beliefs and values about the purpose of public conservation lands. In Norway, Vespestad and Mehmetoglu (2010) explored the relationship between tourist nationality, cultural orientation and nature-based tourism experiences. Their findings showed that more importance was placed on entertainment by collectivistic tourist nationalities, while nature was emphasized and prioritized by individualistic tourist nationalities who participated more frequently in nature-based outdoor activities such as hiking. Studies also confirm that the visiting population in Scandinavian mountains and national parks is becoming more diverse, both in national origin and preferences (e.g. presence or absence of facilities and transportation), pointing to a conflict

among different tourist preferences (Haukeland, Grue, & Veisten, 2010; Vistad & Vorkinn, 2012; Wall-Reinius & Bäck, 2011).

Values and lifestyles. Today, populations of developed countries have less working time and more leisure time (Enger et al., 2014). On the other hand, an increasing proportion of the population of the developing countries is in a '*time poor/money rich*' situation (Dwyer et al., 2008). However, both developed and developing populations were found to increasingly value their spare time, they do not want to waste it in unproductive activities, and are seeking value for money, not necessarily low prices (Dwyer et al., 2008; Enger et al., 2014). Today's consumer is more *individualistic*; his/her behaviour and lifestyle choices are driven by an urge to self-differentiate and a desire to define oneself by the services and products consumed. Consumers have an increasing desire to personalize and customize the services, products and experiences they buy to fit their needs and wants. In spite of travellers' proneness to take short breaks, there is a counter-trend toward extended and high value-added vacations which are purpose-driven by various forms of programmed self-improvement.

The industrialized world is transitioning from the service to the *experience* economy and consumers are searching for deeper, richer and newer experiences through a wide array of activities (Dwyer et al., 2008). According to Fuggle (2015), tourists are now interested in discovering and exploring untouched, unique and lesser-known destinations. There is a growing quest for *authenticity*; the notion of *existential authenticity* which refers to the desire to find one's authentic or true self. Returning to nature might be increasingly favoured as a way to make people understand themselves better, achieve a sense of transformation and feel a strong sense of self. There is an increasing sense among people that their natural heritage is part of their cultural heritage and may contribute to their sense of identity, leading them to connect more regularly with nature and value its protection and retention (Frost et al., 2014).

Furthermore, individuals are becoming increasingly aware of the various environmental issues and more affluent consumers are turning to ethical consumption (Dwyer et al., 2008). A number of studies have examined individuals' *environmental awareness* in different countries. According to the EU (2014) - Special Eurobarometer 416 report, almost all European citizens in the European Union show positive attitudes towards the environment. 95% of Europeans considered protecting the environment as very important to them personally. In China, Wong (2003) found that environmental awareness among Chinese university students is rising. In Japan, Aki (2009) states that people are developing an

increasing empathy for the environment and more people (e.g. post-materialists) are willing to pay higher costs and taxes to protect the environment. On the other hand, Crotty and Hall (2014) found that in some countries such as countries in transition or former Soviet Union countries where the state took over responsibility for all aspects of citizens' lives, people exhibited strong beliefs that environmental issues were not the responsibility of the public. The findings showed that specifically in Russia, people still lack care and interest for the environment.

A study conducted by Dolnicar (2010) found that individuals who were morally-obliged to behave in an environmentally friendly manner at home were most likely to behave in an environmentally friendly manner on vacation. However, an eco-friendly infrastructure must be available at the tourist destination. These findings help to guide marketing strategies for environmentally sensitive destinations such as rural and urban protected areas. It also help tourist destinations identify and target environmentally-friendly market segments with smaller environmental footprints.

Technological trends

Technological advancements mediate and facilitate many aspects of the travel and tourism industry (Benckendorff, 2006; Buckley et al., 2015; Dwyer et al., 2009; Enger et al., 2014). Some of the technological developments that impact tourism and NBT include:

Transportation. In today's globalised world there is no place where tourists do not reach (Hall, Harrison, and Wall, 2013). Technological advancement in the transport industry is reducing the cost and improving the speed of travel. Faster and more convenient transportation systems are increasing the accessibility of destinations worldwide and bringing previously perceived peripheral destinations within reach (Dwyer et al., 2009; Prideaux, 2002; Scott & Gössling, 2015).

Low-cost carriers. Graham and Shaw (2008) argue that low-cost carriers (hereafter LCC) have a positive effect on economic development, specifically in peripheral, remote or less advantaged locations via boosting tourism activities in these areas. Olipra (2012) confirms that LCCs positively affect the development of tourism in less famous destinations and smaller cities. Likewise, Costa and Almeida's (2015) study in Portugal reports a positive impact driven by LCCs on the country's local economy through an increased consumption in the tourism industry.

Chung and Whang (2011) found that LCCs created new tourism demand and generated more tourism revenue into Korea's islands economy, namely Jeju Island. Hence, LCCs have directly contributed to the provision of new job opportunities and growth in accommodation revenues on the island. Similarly, Farmaki and Papatheodorou's (2015) study in Cyprus confirm that LCCs improve destinations' accessibility to new markets which were formerly underserved. However, they highlight that insular destinations are distinguished by their delicate and fragile environments, poor waste management infrastructure, the existence of limited water resources and land use conflicts. Hence, these destinations may not be prepared to host large numbers of tourists and consequently, the immense growth of mass tourism may lead to environmental degradation.

Studies confirm that the transport sector will continue to face the challenge of reducing environmental and social costs related to travel such as pollution and congestion. Uncertainty aspects are the schemes enacted to reduce greenhouse gas emissions and future changes in fuel costs (Dwyer et al., 2009; Scott & Gössling, 2015). Stricter regulation on CO₂-emissions

is expected to have strong ramifications on the aviation industry and may negatively affect certain destinations (e.g. Norway) due to their location far from markets and their dependence on air transportation (Enger et al., 2014).

Road construction. Studies have also shown that the construction of roads and bridges has a direct positive impact on tourism; it connects distant regions and is perceived as a main reason behind the emergence of peripheral tourism destinations (Lund & Jóhannesson, 2014). Aguila and Ragot (2014) found that the construction of roads and bridges in Ilijan, Philippines improves access to the tourist destination, consequently, aids in boosting the city's ecotourism industry. In Iceland, Lund and Jóhannesson (2014) explored how connecting the Strandir region; a remote and sparsely populated area in North-West Iceland, to the rest of the country via road construction has positively affected the viability of tourism in this region. The majority of tourists in the region are independent travellers who use their own cars (private or rented). Hence, driving is the main mode of experiencing Strandir as a tourist destination. As a consequence, the constructed road did not only enhance the region's image and local economy, but was also essential to move "Strandir in different directions in relation to centre and periphery, once being a symbol of modernisation but now a gateway into the past" (p. 444).

According to Więckowski et al. (2014), the lack of inadequate transport infrastructure and road accessibility to tourist destinations of the Polish-Slovak borderland which is situated on the periphery of the European Union is hindering the development of tourism in these destinations. They confirm that new road construction and improved accessibility of the borderland is vital for enhancing tourism activity in the region. However, they emphasize that even though road construction may stimulate tourists' inflow, it may also lead to excessive traffic congestion and increased pressure on the natural environment.

In Wales, the tourism industry has been enthusiastic about developing and improving road connections to encourage tourism activities. Upgrading roads has been linked to the promotion of car-based tourism, particularly day trips and car trails in and around Wales. However, Wales is a tourist destination famous for its perceived pure rural environment and wildness. Therefore, it is argued that the perception of 'Wild Wales' may be seriously damaged by road development (Griffiths, 1998).

High-tech equipment. The booming sales of outdoor high-tech recreational equipment and clothing which became very expensive and specialized are principal drivers behind the immense growth of outdoor recreation today (Buckley, 2000). The embedded technology within the different types of recreational equipment is very beneficial and almost totally empowering for recreationists, mainly by providing them with increased safety, access to natural areas and comfort (with warmth, dryness and lightweight materials) (Shultis, 2012; Shultis, 2015).

New outdoor clothing fabrics are providing recreationists with increased comfort by keeping them warm and dry (Shultis, 2015). POLARTEC® brand fabric, wind and water resistant materials such as flannel, fleece and nylon, and also materials which may have characteristics of GORE-TEX® brand or other technological advances in cold weather fabrics and materials are all examples of outdoor clothing fabrics used by recreationists today (Sullivan, 2014).

Electronic equipment such as cell phones, GPS-based equipment, mountain radios and biofeedback systems may be used for safety-related reasons including obtaining weather forecasts, making pick-up plans and in rescue activities (Mueller & Pell, 2016; Shultis, 2015).

Innovations in mountain bikes' gears, suspension, geometry, brakes, and lightweight frames are providing mountain bikers with riding experiences that are exciting, sensational, and yet safe. Furthermore, the introduction of mountain bikes with an electric motor are now allowing individuals such as seniors and overweight individuals to go mountain biking as well via augmenting their efforts while pedaling (Matzler, Mooradian, Füller and Anschöber, 2014).

In the past five years, the production, sales and use of “fat bikes”; bicycles with 75-120 mm wide tires have increased dramatically. “These bikes are designed to open new terrain to cyclists, including snow-covered trails and softer ground surfaces impossible to ride with a standard mountain bike” (Monz & Kulmatiski, 2016, p.1).

Climbing gear such as crampons, carabiners, and ice axes are also examples of how advanced technology is shaping and facilitating outdoor recreational activities (Shultis, 2015) (e.g. mountain-based adventure activities) (Beedie & Hudson, 2003). Moreover, lightweight material and equipment such as walking poles are particularly beneficial to older users due to their decreasing strength and health (Shultis, 2015).

Information and communication technology (ICT). New technology enables tourism organizations to add value for their customers and minimize their operating costs. At the same time, interactive access to product offering via the Internet provides tourists with unprecedented control over how they spend their time and money (Dwyer et al., 2009). The widespread introduction of internet and other travel marketing systems, computerized reservation systems, web and social media based reviews all have a direct impact on the tourism industry (Benckendorff, 2006; Scott & Gössling, 2015). Tourists are becoming increasingly connected to their mobile phones and technologies becoming more wearable (e.g. RFID powered watches utilised by ski resorts; Google Glass) (Buckley et al., 2015). The power of word-of-mouth is well known in tourism research, and with new technologies electronic word-of-mouth (eVOM) becomes an increasingly important factor which influences destination image, tourists' attitudes and travel intentions (Jalilvand et al., 2012). This could lead to unintentional popularity of sites, causing significant management challenges as the number of visitors increase beyond sustainable levels. While increased visitation usually provide opportunities for the tourism industry, problems related to crowding, littering, safety as well as negative impacts on vegetation and wildlife can imply serious negative effects. Evidence from several places in Norway, such as Trolltunga and Preikestolen, illustrate some of these challenges (Brennpunkt, 2016). As for the future, there are reasons to believe that additional sites suddenly will achieve an "iconic" status, which calls for more adaptive management, policy and/or legislative measures and actions.

Social media is becoming increasingly significant in the online tourism domain and plays an important role in holiday planning (Xiang & Gretzel, 2010). Social media have lead to the democratization of information in tourism; consumers can now easily have access to recommendations and information from locals and fellow travellers (Buckley et al., 2015). More transparency between the customer and supplier (Enger et al., 2014), personalization tactics such as customized emails and personification strategies via delivering relevant digital experiences to customers (Levy, 2015) have lead to increased competition among service providers (Enger et al., 2014; Levy, 2015) and greater consumer power (Buckley et al., 2015; Enger et al., 2014).

A number of studies examined tourists' photo-taking and photo-sharing behaviour on social media and how it impacted nature-based tourism. Pearce and Moscardo (2015) illustrated how the phenomenon of tourist selfies had negative impacts on some tourist destinations (e.g.

Kruger National Park, South Africa) by damaging natural environments. In the pursuit of these photos, some tourists would move beyond management barriers into fragile areas causing damage and erosion to the flora, removal of vegetation, and disturbing wildlife. Moreover, tourists sometimes got themselves into dangerous situations, disturbed other tourists and have caused cultural offence. Hence, there is a need for effective visitor management policies and strategies for this type of contemporary tourist behaviour.

On the other hand, studies have also shown that photos shared by tourists on image-based social sharing websites such as Instagram and Flickr can be utilized to understand the preferences of tourists for nature-based tourism activities and experiences (Hausmann et al., 2017; Sonter, Watson, Wood, & Ricketts, 2016), investigate visitors' destination image (MacKay & Couldwell, 2004) and can be used as a cost-efficient marketing tool for destinations (Prideaux & Coghlan, 2010).

Mobile technology. The continuous efforts to expand mobile service availability to cover even remote and less populated areas will allow tourists to relinquish advance planning and will encourage less experienced travellers to visit and experience new, unknown territories. Technological mediation is expected to continue increasing with smartphones becoming widely used and travel-related apps being ubiquitously accessible (Buckley et al., 2015).

Internet of Things (IoT) is another emerging trend in technology and tourism which allows a new kind of connection to unfold, specifically, connections between objects. IoT allows for new levels of tracking behaviour, decision support, advanced situational awareness, optimized resource consumption, and automated control. For nature-based tourism, this may aid in management of visitor flow in parks, contribute to an enhanced monitoring of fragile ecosystems visited by tourists, and improve traffic management and road safety in highly visited tourist attractions (Buckley et al., 2015).

Worldwide, new technologies are competing with tourism by introducing new sources of entertainment in or near consumers' homes (Dwyer et al., 2009), and the rise of sedentary, indoor pastimes such as the Internet, television and video games have been viewed as a main factor leading to the reduction in participation in outdoor recreational activities (Balmford et al., 2009). On the other hand, Frost et al. (2009) argues that the ubiquity of technology in our daily lives, with people constantly busy and connected to the internet and social media may lead many to search for less artificial and simpler existence through participation in outdoor

nature activities. Therefore, it is expected that a growing number of travellers such as the high-touch tourists who view modern technology as being destructive to experiences (Benckendorff, 2006) will seek out travel that will enable them to disconnect from technology (Buckley et al., 2015).

Fuggle (2015) and Grayling (2016) confirm that ‘Digital Detox Holidays’ are becoming increasingly popular among tourists who are attempting to take a break from technology. A growing number of travel agencies and hotels are currently only focusing on providing tourists with digital detox tours and accommodations. Tourists checking in to these hotels and participating in those tours hand over their laptops, tablets and smartphones. They replace technological advancements with outdoor activities such as oxygenating nature walks, morning yoga classes and bird-watching sessions (Grayling, 2016).

Indoorization is another trend driven by technological factors which may signal a shift away from practicing nature-based recreation in “real” nature. Visitors to some of the hottest places on earth can practise alpine skiing on artificial snow at indoor slopes, and families in the urban areas of central Europe can camp overnight in an artificial tropic environment. Hence, typical outdoor activities are increasingly turned into indoor activities independent from physical conditions, weather and place (van Bottenburg & Salome, 2010), and moved close to where the market is. This is represented by the emergence of integrated leisure complexes which may substitute traditional tourist attractions, but also function as supplements (i.e. introduction of outdoor recreation activities in accessible and safe environments to people that otherwise would not visit the outdoors). Examples being the Edmonton Mall in Canada, an integrated leisure complex with stores, restaurants, an indoor wave pool, an ice arena, water and amusement park, an aquarium and aviary, a dolphin lagoon and an indoor lake (Benckendorff, 2006), the The Tropical Islands “resort” established in a former zeppelin hangar south of Berlin, and the indoor ski Dome at the mall of Emirates in Dubai.

Economic Trends

Economic growth in both developed and emerging economies, and the increase in personal income of their populations, emergence of the sharing economy, and changes in fuel prices are major factors impacting the tourism industry (Buckley et al., 2015; Dwyer et al., 2008; Dwyer et al., 2009; Scott & Gössling, 2015).

Economic growth in developed economies. Gains in the world economy are benefiting the majority of countries around the world, both the developing and developed ones. Economic growth, rapidly rising incomes and greater spending power combined with greater available leisure time are providing more people with the opportunity to travel to various destinations (Dwyer et al. 2008; Dwyer et al., 2009). According to Hawkins and Khan (1998), tourists from developed countries such as Europe, North America, Australia and Japan are becoming increasingly interested in the quality and features of the natural environments of their holiday destinations.

Hawkins and Khan (1998), and Mehmetoglu (2007) argue that nature-based tourism involves mainly affluent tourists from developed countries. These tourists belong to a high income group. Hence, they have more money and leisure time to spend on nature-based experiences. Attracting visitors belonging to a high income group is particularly important for destinations which offer outdoor activities that require a lot of spending such as undeveloped skiing (snowshoeing, cross country), developed skiing (snowboarding, downhill) and all motorized activities (e.g. motorized water recreation) (White et al. 2016).

According to Medieministeriet (2011) report, the high level of income in the Nordic countries allows many Nordic citizens to spend a high percentage of their income on travelling and spending their vacations abroad. Nordic citizens are frequent domestic travellers as well; the Nordic countries are famous for their unspoilt nature which makes nature-based tourism a part of everyday life (Norden, 2016). Studies have shown that in Finland there is a high domestic demand for nature-based tourism. In 2014, domestic tourists accounted for 14.1 million out of the 19.8 million overnight stays recorded by Finnish accommodation establishments (OECD, 2016). In Sweden, Fredman (2008) examined the determinants of expenditure in mountain tourism among Swedish mountain visitors (e.g. snowmobilers, backpackers and downhill skiers). The findings showed that there is a positive connection between visitors' household income and their expenditure in the Swedish mountain region.

Moreover, downhill skiers were identified as the biggest spenders. Hence, they have the largest direct positive impact on the region's local economy.

Similarly, in Norway, Thrane and Farstad (2009) explored domestic tourists' summer tourism expenditure. They found a positive relation between Norwegian tourists' income level and tourism expenditure. Mehmetoglu (2007) also confirm that nature tourists' high levels of income (household and individual) had a strong impact on their expenditure on various winter and summer nature-based activities in Norway. Statistics Norway Travel Survey has shown that Norwegians are travelling less. However, they are spending more money when they travel. In 2015, Norwegians spent on holidays and leisure activities 4% more than in 2014. Nature outdoor experiences ranked highly among Norwegian holidaymakers; they showed interest in participating in activities such as hiking, fresh water fishing, downhill skiing, experiencing the mountains, experiencing the fjords and sport activities such as climbing and kiting (Innovasjon Norge, 2015).

Economic growth in emerging economies. A primary driver of global economic growth is migration of industrial production from the western world to countries with lower labour costs (Enger et al., 2014). Economic growth in the emerging economies of the BRIC (Brazil, Russia, India and China) countries and particularly in India and China (Frost et al., 2014) has been fundamental to the expansion of tourism (Scott & Gössling, 2015). Populations of these countries are becoming wealthier and their higher levels of disposable *income* is allowing them to travel more than in the past (Frost et al. 2014) which has caused major alterations in the ethnic and cultural mix of international travellers (Buckley et al. 2015). According to Moutinho, Rate and Ballantyne (2013), the inflow of tourists from emerging countries is expected to change the shape of the tourism sector in the EU. For instance, Enger et al. (2014) have found that Norway has already seen large growth from Asia, while experiencing negative growth from many of the volume markets in Europe (e.g. German market).

Buckley et al. (2015) and Moutinho et al. (2013) found that as tourists from emerging economies begin to travel abroad, they bring different behaviour, expectations, and demands to inbound tourism markets in countries formerly dominated by European and North American tourists. Buckley et al. (2015) argues that the latter countries adopt visitor management strategies (e.g. in national parks) which are implicitly customized to certain cultural norms, such as obeying guidelines and instructions not to disturb wildlife, drop litter, or remove any animals or plants. Commonly, these instructions are embedded in regulations

as well, “but the resources to police such regulations on the ground are not available, because park agencies rely on behavioural compliance by visitors” (p.63). For outdoor tourism, the majority of tourists from Asian nations have less experience in outdoor adventure activities. Some Asian tourists were also found to have little experience in minimal-impact behaviour for nature-based tourism such as wildlife watching. Thus, different management approaches are needed in order to avoid the creation of conflicts with tourists of different origins, who have different expectations and to ensure safety as well.

In the UK, Roberts (2015) found that the upward trend in spending and participation in leisure activities are mostly attributed to rising incomes, specifically among the increasing proportion of adults in middle class occupations. In China, Ali and Amin (2014) reported that with thriving economy and growing middle class with more disposable income, an increasing number of people are travelling to resorts located in beautiful and exotic natural destinations. They argue that these resorts which were formerly only visited by high class travellers are now also occupied by middle-class tourists who want to escape from their daily routines, enjoy their spare time and relax. According to Cohen and Cohen (2015), the increasing availability of discretionary time and income, specifically among the new urban middle classes in Latin America, Asia and Sub-Saharan Africa, motivated and facilitated the emergence of spontaneous domestic travel. They found that in Asia, domestic tourists were interested in nature trips, visiting heritage sites, shopping and tasting local specialties. However, they showed no interest in exhaustive outdoor activities such as trekking. While, extended sea-side holidays were favoured by Latin American domestic tourists.

According to Tutek et al. (2015), many destinations in the emerging and developing regions (e.g. Asia, East and Middle Europe, Eastern Mediterranean and Africa) are managing to attract and retain the growing middle class members who are searching for new travel interests, experiences and value for money. These emerging destinations are expected to soon have more international arrivals than developed destinations (e.g. Western Europe and North America).

The Chinese market. According to the ETC (2014) report, China is the fastest growing tourism market source in the world. Chinese tourists are number one tourism spenders in the world and they seek travel destinations that offer unique features, China friendly services (e.g. gastronomy), value for time and money, and a safe travel environment. Kim, Guo, and Agrusa (2005) confirm that Chinese tourists consider ‘safety’ and ‘beautiful natural scenery’

to be the most important attributes of overseas travel destinations. These tourists are groups travelers; they still use travel agencies to book their package tour products and as their main source of travel information (Arlt, 2013; Cai, Lehto, and O'Leary, 2001). Hence, it is essential for holiday destinations to have good links with Chinese travel agencies in order to successfully sell products and services to this market segment (Torvinen & Brosy, 2010). However, Arlt (2013) confirms that self-organised trips among the second-wave of Chinese tourists who are becoming increasingly affluent and sophisticated are growing fast. This is due to a number of developments including increased offline and online tourism marketing by tourism organizations, provision of travel-related information via social media, the easing of visa regulations in many destinations, and the growing number of Chinese students and other citizens travelling and living temporarily in foreign countries.

A study conducted by Ryan and Mo (2001) explored Chinese tourists' NBT activities preferences in New Zealand. They found that Chinese tourists enjoy sightseeing in nature-based settings such as visiting national parks, farms and gardens, and going on boat cruises. They are more interested in passive enjoyment of natural scenery; that is, by sightseeing rather than by being actively involved in a nature-based activity. However, the study showed that younger Chinese tourists were more interested in active experiences. Torvinen and Brosy (2010) examined Chinese tourists' demand for NBT in Northern Finland. The findings showed that Chinese tourists are interested in Finland's unspoiled nature. However, they find the distance and high prices discouraging. Northern lights, midnight sun, wildlife watching and photography are the most appealing NBT activities for Chinese tourists in Northern Finland.

Du, Buckley, and Tang's (2016) study in a Chinese nature reserve found that Chinese tourists preferred high-volume bus-based sightseeing tours while international tourists preferred low-volume active hiking. These findings show distinct cultural differentiation in the preference and choice of commercial outdoor tourism products and related experiences. Moreover, the findings imply that currently ecotourism and nature tour operators catering to Chinese tourists in outbound destinations may have to adapt their services and products to conform to more passive than active nature-based activities. According to Arlt (2013), "the second wave of Chinese outbound tourism offers increased opportunities for destinations and tourism service providers in off the beaten track destinations to get a share of the Chinese tourism outbound source market" (p. 132). However it is essential for host destinations to adapt their services and products to the expectations and needs of these tourists.

Sharing economy. The emergence of the sharing economy is another important factor which proved to have serious impacts on the tourism industry (Grayling, 2016; Juul, 2015; World Travel and Tourism Council, 2015). Tourism services which have traditionally been provided by businesses such as tour operators, hotels, restaurants and taxis are gradually being replaced by an increasing number of individuals who are offering a wide array of budget-friendly services. These individuals are temporarily sharing with tourists what they do (e.g. excursions or meals) or what they own (e.g. their car or house) (Grayling, 2016; Juul, 2015). They utilise the internet to create online platforms (e.g. Airbnb, Uber) which facilitate the process of sharing their products and services (Belk, 2014; Grayling, 2016; Juul, 2015). Consequently, challenging tourism businesses due to factors such as reduction of job security, unfair competition and the avoidance of taxes (Juul, 2015).

A study conducted by Tussyadiah and Pesonen (2015) found that the low cost of peer-to-peer accommodation such as Airbnb will directly affect tourist destinations. Peer-to-peer accommodation will lead to the expansion of destination selection, allow tourists to travel more often, stay for longer durations and participate in more touristic activities. The findings indicate that tourist destinations will benefit economically due to the rise in the numbers of visitors. However, the increase in travel frequency may also cause more pressure on the natural environment, lead to resource exploitation and overcrowding in these destinations.

Fuel costs. Fluctuations in prices of oil have a direct impact on the tourism industry largely because of its deep-rooted transport component. Despite temporary reductions, oil prices are predicted to increase again in the near and long-term future. A rise in global oil prices negatively impact travel propensity, particularly to long-haul destinations. Furthermore, higher oil prices lead to higher transport costs, for instance due to the rise in airline ticket prices and the introduction of fuel charges which are likely to lead to reductions in travel or cause tourists to choose closer destinations instead of distant ones. Fuggle (2015) confirms that travelling closer to home or 'staycation' is a growing trend among tourists.

Moreover, increasing concerns about carbon intensity of fuels and future implementation of climate change mitigation policies indicate that tourists travel will undoubtedly become more restrictive and expensive. It is foreseeable that rising oil prices will lead to re-localization and de-growth of tourism. Thus, tourist destinations with unfavourable geographical locations will be negatively affected in a low-carbon tourism world (Becken & Lennox, 2012; Buckley et al. 2015; Scott & Gössling, 2015).

According to Enger et al. (2014), due to the oil and gas industry, there is a rising price gap between Norway (a tourist destination famous for its unique nature-based activity products) and other competing destinations which negatively affect the proportion of foreign tourists visiting it. Hence, the Norwegian tourism industry needs to target segments with lower elasticity and markets with economic growth. Additionally, it needs to increase the quality and value of its services and products, and especially emphasize the uniqueness and competitiveness of its nature-based tourism products.

Environmental trends

Tourism and the environment are closely linked to one another, especially so in nature-based tourism. The natural environment and climate conditions are crucial in determining the attractiveness and viability of a region as a tourist destination. Two major environmental trends impacting nature-based tourism are climate change (Bell et al., 2007; Dwyer et al., 2008; Dwyer et al., 2009; Frost et al., 2014) and changes in land-use and landscape (Bell et al., 2007; Dwyer et al., 2008).

Climate change. Warming of the climate system is indisputable, and since the 1950s, many of the detected changes are unprecedented over decades to millennia. The concentrations of greenhouse gases have increased, the atmosphere and oceans have warmed, sea level has risen, and the amounts of ice and snow have diminished (IPCC, 2013). Nature-based tourism is strongly impacted by natural climate seasonality; by anomalously cool, warm, dry or wet years; and by any extreme weather events (Buckley et al., 2015; Dwyer et al., 2008; Dwyer et al. 2009; Enger et al., 2014). Climate change is not only affecting natural tourist attractions, but is also impacting the profitability of the industry via increasing costs of energy use. Schemes to mitigate greenhouse gas emissions will inevitably affect operator costs and the competitiveness of tourist destinations; particularly long haul destinations (Dwyer et al., 2008 and 2009).

Dwyer et al. (2008) expect climate change to negatively impact winter tourism in regions such as Northern Europe and North America which will be much warmer and wetter, while summer tourism in these regions is expected to be in a favourable condition in comparison to hotter regions such as the Mediterranean, Southern Europe and Australia (more days above 40°C). Similarly, Amelung, Nicholls and Viner (2007) confirm that in the coming decades it is likely that Northern Europe will witness a vast improvement in its summer climatic conditions which will result in an increase in the levels of domestic and international visitation from Southern Europe. Meanwhile, Southern European countries that attract “sun and sand” summer tourists are likely to become too hot for tourists comfort in the summer season. However, they will experience an improvement in the shoulder season (more pleasant spring and autumn months). Impacts of these climatic changes will depend greatly on tourists’ and institutions’ flexibility in reacting to climate change, with significant implications for both temporal and spatial redistribution of tourism activities.

Several studies undertaken in various countries including Sweden, Austria and Australia have confirmed that climate change has detrimental effects on tourism in mountain areas such as *ski tourism*; a decline in snow cover leads to changes in visitation patterns such as reduction in visitation for lower-altitude ski resorts and an increase in visitation patterns in higher-altitude resorts, consequently, creating capacity pressures in the latter and economical problems in the former (Bürki, Elsasser, & Albegg, 2003; Dwyer et al., 2008; Falk, 2010; Moen & Fredman, 2007; Pickering, 2011; Steiger, 2011). In regards to skiers' adaptation, Gössling, Scott, Hall, Ceron, and Dubois (2012) state that under climate change scenarios, skiers may become more flexible and adaptable in time and space. The acceptance of technical adaptation to climate change may be accepted in some areas such as snowmaking, however probably not in others, such as indoor skiing to replace cross country skiing.

Winter nature-based activities that require plenty of snow such as dog sledding and snowmobiling are expected to face serious consequences as well (e.g. in Finland) as reported by Tervo (2008). White et al. (2016) confirm that in the United States, the absence of snow cover will lead to a reduction in participation in undeveloped skiing or snowmobiling on federal lands. They report that these activities attract recreationists who have high trip expenditures. Hence, reduced visitations will have a negative economic impact on communities where these activities take place.

Bürki et al. (2003) and Gagné, Rasmussen, and Orlove (2014) reported that in addition to a decline in snow cover, global warming is also leading to receding glaciers which does not only diminish aesthetic values in mountain areas, but also the economic value associated with tourism activities including sight-seeing and sports activities such as trekking or skiing. The negative impact of glacial retreat on tourism has been reported in destinations such as the Andes, the Alps, and China. These tourist destinations have experienced a reduction and/or relocation of nature-based tourism activities as the landscape's iconic features gradually vanish (Gagné et al., 2014).

Another effect of climate change is melting of permafrost which makes many mountain areas vulnerable to more extreme events such as landslides (Bürki et al., 2003). Similarly, Nyaupane and Chhetri (2009) have found that climate change will have adverse impacts on nature-based tourism in protected areas in the Nepalese Himalayas; flash floods, debris flows and landslides in the hills; glacial lake outburst floods and avalanches in high mountains; and floods are rampant in lowland Terai.

Studies have shown that *dive and snorkel tourism* is also facing serious risks caused by climate change; Klint et al. (2012) have found that dive tourism in Vanuatu is facing a number of stressors and shocks caused by climate change. Shocks identified included earthquakes, cyclones and a negative effect on demand due to media footage, while main stressors were starfish outbreaks and environmental degradation. Klinthong and Yeemin (2012) have found that climate change is leading to coral bleaching in Mu Koh Similan National Park, a popular diving spot in the Andaman Sea. Furthermore, the outbreak of species perceived as unpleasant and the pollution of water bodies have negatively affected tourism in various destinations. For instance, the accumulation of jellyfish has impacted tourist destinations in the Gulf of Mexico and Hawaii, and algal blooms have negatively affected tourists' holidays in the Adriatic and the Baltic (Gössling et al., 2012).

Future changes in climate is also predicted to cause a higher fog level or more precipitation which will lead to new and different conditions for mountain summer tourism activities such as biking, hiking and trekking (Bürki et al., 2003). Furthermore, Buckley et al. (2015) have reported that hurricanes in Mexico, drought-related wildfires in the USA, Spain, Greece and Canada and drought-related water quality and water levels were also serious ramifications of climate change which severely impacted tourism operations (e.g. via drops in visitation) in these destinations.

According to Scott (2011), the tourism industry is among the least prepared industries in terms of opportunities and risks constituted by climate change. For example, Gössling and Buckley (2016) found that tourism carbon label schemes have serious deficiencies both from the practical view of tourist action and understanding, and from the theoretical perspective of communications analysis. The findings indicate that even if tourists care about their climate change impacts, carbon labels are currently inadequate because of shortcomings in communications. In South West England, Coles, Dinan, and Warren (2016) found that there was a very low level of energy literacy among small- and medium-sized tourism enterprises (SMTEs). SMTEs did not take a strategic approach to energy management and the clear energy illiteracy among them was regarded as a serious impediment to the tourism industry response to climate change.

This lack of preparedness is distinctly seen in Finnish tourism as well. A study conducted by Kietäväinen and Tuulentie (2013) have shown that at a strategic level, issues related to climate change are handled in an abstract manner, focusing on the perspectives of tourism

markets and industry, while environmental justification is inadequate, and lacks urgency. Furthermore, there is a paucity of future scenarios in these strategies. Structural changes in the sector are required but both the growth of tourism and the survival of nature are taken for granted. Hence, risks posed by climate change are not yet taken into practical consideration in Finland and probably elsewhere.

Land use and landscape change. Changes in human activities such as the increasing urbanization, rural depopulation, changes in the economics of food and timber production (Bell et al., 2007) and exploitation of land for energy production and road construction have led to various changes to landscapes and sometimes to a loss of their aesthetic values (Dunlap, Van Liere, Mertig, & Jones, 2000). One of the central driving forces of nature-based tourism is natural landscapes; in sequence, all the previously mentioned factors may have negative effects on the quality of visitor experiences and most importantly on the ecosystem.

MacDonald et al. (2000) found that in peripheral and rural regions landscapes are becoming abandoned as farming is uneconomic and people migrate to the cities. They argue that this can have positive impacts on the environment, as natural habitats increase and pollution decreases, leading to attractive places for tourism and recreation. However, this can also reduce the quality of the landscape (reforestation of open pastures), the infrastructure for tourism and recreation may be at risk and the people who remain may not be well equipped with the entrepreneurial skills required to take advantage of the potential for recreation and nature-based tourism.

While many land-use changes may negatively impact the landscape as an arena for nature-based tourism, more recent environmental policies in the Scandinavian countries have emphasized the need to integrate outdoor recreation and nature-based tourism with the protection of nature (Fredman & Haukeland, 2016). While the effect of such policy changes still remain to be analyzed, there are reasons to think they might have a positive effect on nature-based tourism opportunities in the future.

Spontaneous reforestation. According to Vinge and Flø (2015), many Nordic rural landscapes face what is called spontaneous reforestation: as grazing and mowing have nearly come to an end, trees and scrub flourish and prosper. In Norway, agricultural landscape is perceived as a valuable cultural landscape and holds a distinct position in rural discourses. In this manner, reforestation is seen to be connected to a loss of cultural heritage and tradition, also foreseen as a future obstacle for tourism and accessibility. Further spontaneous

reforestation of these landscapes is considered problematic because it will lead to a reduction in the attractiveness of tourist landscapes as well as a loss of biodiversity. Vinge and Flø (2015) found that an increase in vegetation may be perceived positively, however, too much vegetation was seen as boring. Tourists' were found to desire a landscape which was perceived as scarce, unusual or threatened.

Forest roads construction. Haanshus's (1998) study has found that the construction of forest roads in Norway is another controversial issue. Modern forestry depends on an abundant road system, and the construction of forest roads leads to extensive and irrevocable encroachment to the landscape and nature. Conditions for use and accessibility of the regions served by the road alter remarkably, consequently, leading to conflicts between forestry and the public in Norway. The conflict of interest upsurges, depending on the previous virgin appearance of the area being developed, the distance to the urbanized areas and the presence of unique environmental and natural attributes.

Power production. In Iceland, Sæþórsdóttir (2012) discussed the land use conflict between the tourism industry and the power production industry. The main attraction of tourism and specifically, nature-based tourism in Iceland is nature and wilderness, among them the Highlands. These same areas are also important for hydro-electric and geothermal power production. Findings show that beautiful and unique landscapes and unspoiled nature are very important for nature tourists. Hence, power production in the Highlands and in similar nature areas will reduce tourists' wilderness experience and consequently, negatively affect the tourism industry.

Debates over the impacts of wind power production have recently received a lot of attention as well. The production of wind power is perceived as a threat to the naturalness of landscapes and seascapes, consequently, a threat to nature-based tourism. For instance, in Norway, a survey on tourists' attitudes towards wind power production suggests a potential for large land use conflict between wind power plants and tourism (IEA wind, 2010). In the USA, Lilley, Firestone and Kempton (2010) investigated the impacts of offshore wind turbines on coastal tourism and found that some tourists reported that they would avoid beaches with visible turbines. Onshore and offshore wind power development in Scotland, a country known for the scenic beauty of its wild land (Scottish uplands) is creating fears that Scotland's scenery, landscapes and tourism will be jeopardized (Warren & McFadyen, 2010). In the Czech Republic, there are similar debates over the impact of wind turbines on its rural

countryside landscapes and tourism activity, and some tourists have clearly stated that they will not visit nature destinations with wind turbines (Frantál & Kunc, 2011).

On the other hand, studies have also reported the presence of a countervailing effect; in the USA, Lilley et al. (2010) found that many tourists have shown interest in offshore wind boat tours and attraction to beaches themselves so that they can see wind turbines. In Sweden, Braunova (2013) examined the impact of wind power on tourism in the Swedish island Gotland. The findings showed that the majority of tourists' decision to return to Gotland was not impacted by wind turbines. Furthermore, the development of 'wind power tourism' as a new form of tourism was seen as an opportunity for the advancement of tourism on the island. Warren and McFadyen (2010) found that many visitors in Scotland associated wind farms with clean energy rather than landscape destruction. They also argue that wind farms that are cautiously sited may help to promote destinations' reputation as environmentally friendly tourist destinations. Likewise, Frantál and Kunc (2011) confirm that with the support of good marketing strategies, wind turbines may be utilized to support development of new forms of tourism (e.g. green tourism).

Since many stakeholders often have interests in the recreation landscape, proper planning and management practices are required in order to avoid land use conflicts between different interests such as tourism, energy production and forestry (Fredman & Tyrväinen, 2010).

Protected areas. There is ample evidence in the tourism literature that protected areas are attractions in the nature-based tourism system (Balmford et al. 2015; Eagles 2014; Haukeland 2011; Wall-Reinius & Fredman 2007). While unsustainable tourism practices can be a threat to nature, tourism is also viewed as an opportunity to preserve nature as visitation to protected areas generate economic input. Interpretation and education of visitors may also lead to more positive attitudes and behavior towards nature protection. Authorities in both Norway and Sweden have accordingly emphasized the need to integrate nature-based tourism with protection of nature so that the two can be of mutual benefit. Both countries have also launched initiatives for visitor monitoring, park branding and tourism development in their national parks respectively (Fredman & Haukeland, 2016). While protected areas provide a special, more manageable, context for nature-based tourism (through special jurisdictions, management and policy measures), Fredman and Haukeland (2016) identify five main challenges for the future to this type of tourism in Scandinavia: Urbanization, increased

mobility, changing demography, new lifestyles and climate change – all topics more or less covered by this report.

Political trends

The major political drivers impacting all sectors of the tourism industry today are: Political turbulence, war and terrorism, changes in border regulations, health risks (Dwyer et al. 2008; Dwyer et al., 2009; Scott & Gössling, 2015) and geopolitics (Buckley et al. 2015).

Political turbulence, war and terrorism: Political stability, security, safety and peace are essential requirements for the advancement and progression of sustainable tourism. Conflicts and political turbulence in regions such as the Middle East, Africa and parts of Asia will inhibit tourism flows overall but can also benefit tourist destinations perceived to be 'secure' and 'safe' (Dwyer et al., 2009). According to Benchendorff (2006), the threat of terrorism is especially acute for tourist attractions that offer settings where large numbers of visitors are present.

Political uncertainty and terrorist incidents have seriously impacted the tourism industry in a number of well-known holiday destinations (ABTA, 2015; Tutek et al., 2015). In 2015, incidents such as the Charlie Hebdo shootings and the terrorist attacks in Paris, the terrorist attack on British tourists in Sousse, Tunisia which have led The Foreign & Commonwealth Office (FCO) to advise against all but essential travel to the country which received 400,000 British tourists in 2014. Similarly, the FCO advised against travel to Sharm El Sheikh; a famous Egyptian resort after the downing of a Russian plane, a bomb in Bangkok and the announcement of a state of emergency in Brussels and the Maldives are all incidents which had negative impacts on tourism in these tourist destinations (ABTA, 2015). Providing tourists with a predictable and safe environment is the most challenging issue facing tourist destinations in the current political climate (Benchendorff, 2006). Therefore, crisis and disaster management is becoming a necessity for destination managers (Tutek et al., 2015).

According to Frost et al. (2014), we may see a loss of many national parks and tourism in Asia in the future due to war and civil unrest. Similarly, Eagles (2004) reports that park tourism may be damaged by political turbulence, particularly in parts of Asia and Africa. For instance, in Uganda, in the year 2000, the Bwindi Impenetrable Forest National Park was a military activity site against visitors of the national park. This incident killed several people and ruined a promising nature-based tourism industry in this country. Hence, political stability is crucial for the preservation of natural resources and continuity of tourism including NBT operations.

Changes in border regulations. Changes in border regulations (e.g. Schengen Agreement, China's Approved Destination Status - ADS) have diminished border travel restrictions, creating many new tourism opportunities in several regions of the world. The introduction of China's Approved Destination Status (ADS) and the associated changes in its outbound tourism policy have led the UNTWO (2011) to anticipate that China will become the largest outbound market by 2020 (Scott & Gössling, 2015). On the other hand, Dwyer et al. (2009) report that the threats of terrorism, which is inclined to become more decentralized (due to Internet use) will have a direct negative effect on security including bio-security measures which will lead to stricter border controls, thus, creating barriers to the progression of tourism.

Health risks. The continuing rise in international travel and tourism is a driving force in global emergence and proliferation of various health-related crisis including infectious diseases. International travel brings with it unmatched risk of infectious diseases (Dwyer et al. 2008; Dwyer et al. 2009). For instance, the outbreak of the Zika (ZIKV) virus in the Americas and particularly in Brazil during the Rio De Janeiro Olympic Games have raised public health concerns in many countries over the risk of infection for both athletes and tourists (Massad, Coutinho, & Wilder-Smith, 2016). Moreover, the outbreak of Zika has led to an increase in diagnostic requests in many European countries and among a lot of European travellers returning from regions where ZIKV is endemic (Huzly, Hanselmann, Schmidt-Chanasit, & Panning, 2016).

According to Dwyer et al. (2009), concerns over the spread of diseases and infections have encouraged the growth of 'enclaved tourism' in various destinations. However, they state that such approaches need to be reconsidered and checked thoroughly to make sure resorts do not leave tourists more vulnerable to the threat of diseases. Moreover, Dwyer et al. (2008) argue that economic pressures to boost tourism mean that even the most infected, poor, and dangerous countries are still competing for tourists. Such countries often lack the ability to monitor disease outbreaks or are unwilling to report these infectious outbreaks when identified. They state that when it comes to decisions related to public health, political consideration may be more essential than epidemiological statistics and that many "governments have been slow to strike the right balance between timely and frequent risk communication and placing risk in the proper context" (p.26).

Scott and Gössling (2015) speculate that future spread of persistent life-threatening diseases may make international travel be perceived as a personal risk. Consequently, travel may be highly and strictly regulated to prevent the spread of any virulent diseases among destinations.

Geopolitics. In today's globalised world where national boundaries are eroding and interactions between people and countries are expanding, tourism is being used as a method to realize particular geopolitical goals. For example, tourism is used by China as a projection of its soft power; "extending Approved Destination Status (ADS) to selected countries and encouraging positive bilateral relationships and travel through its Confucius Institutes" (Buckley et al. 2015, p.64).

Geopolitically sustainable tourism via sport is also conveyed in the Commonwealth Games; identified as the 'friendly games' which assist in unifying the divergent membership. The expansion of regional alliances such as North American and the European Union Free Trade Agreement will both trigger and be vitalized by the liberalization of the movement of tourists within these multilateral systems. Today, *geopoliticization* of tourism is used as a tool to aid or obstruct the apparently relentless drivers of globalization (Buckley et al. 2015).

Concluding remarks

Our analysis aims to identify and describe the most prominent exogenous factors affecting NBT. These macro dynamics are described as social, technological, economic, environmental and political drivers (Dwyer et al., 2009) and define the STEEP framework for prospective tourism developments in a nature-based setting.

The megatrends and associated sub-trends identified by means of our literature review are captured in Table 5. Each single factor influences the tourism system individually and may be enforced or modified in interaction with one or more other factors. The results of these forces can only be properly understood if each of these factors are fully recognized.

Table 5. Megatrends and sub-trends impacting tourism and associated nature resources

| Megatrends | Sub-trends |
|-------------------|---|
| Social | Population growth, changes in household composition, ageing population, health and well-being, urbanization, changing work patterns, gender, increasing cultural diversity, values and lifestyles |
| Technological | Transportation, high-tech equipment, information and communication technology (ICT) |
| Economic | Economic growth in developed economies, economic growth in emerging economies, sharing economy, fuel costs |
| Environmental | Climate change, land use and landscape change |
| Political | Political turbulence war and terrorism, changes in border regulations, health risks, geopolitics |

The megatrends and sub-trends are obviously relevant also to the Norwegian context and reflected in the country's steady urbanization, population growth, changing age structure, and altered household composition. More comfort seeking among the population leads to demand for softer and more facilitated nature-based tourism activities. The modern life styles are also connected to increasingly diversified cultural expressions, transformation of gender roles, health and well-being orientation, and changed social values. The socio-cultural transformations signify leisure activities as social markers and nature-based tourism becomes a prominent part of the citizens' personal identities. The differentiation processes comprehend an interest in more varied and specialized nature-based tourism activities, i.e.

snowkiting, glacier hiking, river rafting, kayaking, mountain biking, randonnée skiing and the like (Dervo, Skår, Köhle, Øian, Vistad, Andersen, & Gundersen, 2014) .

Scandinavian countries, including Norway, have been in the forefront of introducing ICT technology among the general public (Worldatlas, 2017). A relatively strong economic growth in the first decades of the 21st century has increased the purchase and consumption power, and there has been a growing market for fashionable outfits, sophisticated gear and technical innovations. Transportation developments, particularly low-cost air traffic and improved road networks, have made many peripheral regions, with high quality natural attractions, far more accessible than before. In addition, social media connects consumers and market nature-based experiences much faster today than just a few years ago. Some of the hot spots for Norwegian nature-based tourism, including iconic places like Trolltunga and Preikestolen, are probably generated through this type of information sharing.

The environmental aspect connected with climate change is yet another issue of great concern for Norwegian nature-based tourism. The reduction of winter season, with outdoor snow and ice activities, is starting to become a threat as people seem to prefer tourism localizations that (still) have relative stable winter conditions. The shortening of the winter season also extends the summer and autumn seasons and supports outdoor recreation activities like hiking and mountain biking.

The impacts from increased political turbulence and unrest abroad also confirms the image of Scandinavia as a safe destination. If terrorist or other shocking incidents do not take place at a grand scale or in a repeating way in the future, it will be beneficial for both domestic and international tourism in Norway.

The research setting for this report is the BIOTOUR project. The main goal of this research is to analyze key conditions for future development of nature-based tourism in Norway that contribute to business innovation, community resilience and sustainable use of natural resources (www.nmbu.no/biotour). The identification and depiction of the societal framework conditions and major dynamics in this literature review will serve as a backdrop for the examinations of these key conditions. The results presented here will also position the various inquiries within the BIOTOUR project and its various work packages in a wider societal context.

The report is produced within the first work package of BIOTOUR (WP1), which function as a foundation for the more specific work packages dealing with the resource base for nature-based tourism (WP2), market studies (WP3), analyses of tourism industry actors and management (WP4), and innovative tourism solutions (WP5). The global developments identified in this report will also function as a background for a national survey among nature-based tourism firms in Norway, where business characteristics, developments and innovations are being addressed. More specifically, this report also provides a key input to a study of contemporary trends in nature-based tourism with experts from Norway, Sweden, Finland, the Alps region and the Western United States. Following a Delphi approach (e.g. Donohone & Needham, 2009), ten categories of experts were included based on their significance for the future development of the nature-based tourism sector:

- National or regional government/ministry
- Regional tourism associations, destinations or municipalities
- Tourism marketing organizations
- Nature-based tourism company or association
- Outdoor industry (equipment, clothing etc.)
- Outdoor recreation organizations, non-profit organizations
- Organizations managing infrastructure, natural resources and/or environments used for nature-based tourism
- Academia, consultants
- Media (special interest in tourism and/or outdoor recreation)
- Youth organizations (special interest in tourism and/or outdoor recreation)

In this study, experts are challenged with questions concerning trends in nature-based tourism with a 10-year time horizon, drivers behind the trends, as well as associated opportunities and challenges to the nature-based tourism sector from the identified trends. As both trends and drivers identified in this Delphi study will be discussed at national and cross-national levels, the literature review reported here allows for better positioning of these dynamics in a general global context.

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Appendix 1

Table 1. Details of studies examining the megatrends impacting tourism and NBT, and their contribution to this report

| Author/year | Journal | Location | Megatrend/sub-trend presented in report |
|--------------------------|---|-----------------|---|
| ABTA (2015) | Report | – | - Social/ Ageing, health - Political/ Political turbulence, war and terrorism |
| Aguila and Ragot (2014) | Quarterly Journal of Business Studies | Philippines | - Technological/ Road construction |
| Aki (2009) | – | Japan | - Social/ Values and lifestyles |
| Ali and Amin (2014) | Journal for Global Business Advancement | China | - Social/ changing work patterns |
| Amadeus (2014) | Report | – | - Social/ Ageing |
| Amelung et al. (2007) | Journal of Travel Research | – | - Environmental/ Climate change |
| Arlt (2013) | Tourism Planning & Development | China | - Economic/ Economic growth in emerging economies |
| Balmford et al. (2009) | Plos Biology | 20 countries | - Technological/ Information and communication technology |
| Balmford et al. (2015) | Plos Biology | Global | - Environmental / Protected areas |
| Becken and Lennox (2012) | Tourism Management | New Zealand | - Economic/ fuel costs |
| Becken and Job (2014) | Journal of Sustainable Tourism | – | - Social/ population growth, gender, increasing cultural diversity - Technological/ Information and communication technology (ICT) |
| Beedie and Hudson (2003) | Annals of Tourism Research | – | - Technological/ High-tech equipment |
| Belk (2014) | Journal of Business Research | – | - Economic/ Sharing economy |
| Bell et al. (2007) | Living Reviews in Landscape | – | - Social/ Population growth and ageing - Environmental /Climate change, land use and landscape change |

| Author/year | Journal | Location | Megatrend/sub-trend presented in report |
|--------------------------------|--|-----------------|---|
| Benckendorff (2006) | Tourism Business Frontiers | – | - Social/ Changes in household composition, gender - Technological/ Information and communication technology (ICT) |
| van Bottenburg & Salome (2010) | Leisure Studies | Netherlands | - Technological / Indoorization |
| Buckley (2000) | International Journal of Tourism Research | – | - Social/ Urbanization |
| Buckley et al. (2015) | Tourism Recreation Research | – | - Social/ Population growth and ageing, urbanization - Technological/ Information and communication technology (ICT) - Economic/ Fuel costs, economic growth in emerging economies - Environmental/ Climate change |
| Bürki et al. (2003) | Conference Paper | – | - Environmental/ Climate change |
| Braunova (2013) | MSc Thesis | Sweden | - Environmental/ Land use and landscape change |
| Cai et al. (2001) | Journal of Hospitality Leisure Marketing | China | - Economic/ Economic growth in emerging economies |
| Chung and Whang (2011) | Journal of Transport Geography | Korea | - Technological/ Transportation |
| Cohen and Cohen, (2015) | Current Issues in Tourism | – | - Social/ Changing work patterns |
| Coles et al. (2016) | Journal of Cleaner Production | England | - Environmental/ Climate change |
| Costa and Almeida (2015) | Journal of Spatial and Organizational Dynamics | Portugal | - Technological/ Transportation |
| Crotty and Hall (2014) | Sustainable Development | Russia | - Social/ Values and lifestyles |
| Curtin (2005) | Journal of Ecotourism | – | - Social/ Urbanization |
| Cynarski and Grzywacz (2016) | – | Poland | - Social/ Changing work patterns |
| Dickinson and Peeters (2014) | International Journal of Tourism Research | UK | - Social/ Changing work patterns |
| Dolnicar (2010) | Tourism Recreation Research | Australia | - Social/ Values and lifestyles |
| Du et al. (2016) | Tourism Recreation Research | China | - Economic/ Economic growth in emerging economies |

| Author/year | Journal | Location | Megatrend/sub-trend presented in report |
|--------------------------|--|-----------------|--|
| Dunlap et al. (2000) | Journal of Social Issues | USA | - Environmental/ Land use and landscape change |
| Dwyer and Edwards (2000) | Journal of Sustainable Tourism | Australia | - Social/ Urbanization |
| Dwyer et al. (2009) | Tourism Management | Australia | - Social/ Population growth, ageing, changing work patterns - Technological/ Transportation, Information and communication technology (ICT) - Environmental/ Climate change - Economic/ Economic growth in developed economies - Political/ Political turbulence, war and terrorism, changes in border regulations |
| Dwyer et al. (2008) | CRC for Sustainable Tourism/Technical Report | Australia | - Social/ Population growth, changes in household composition, ageing, health, urbanization, changing work patterns, gender, values and lifestyles - Economic/ Economic growth in developed economies - Environmental/ Climate change, land use and landscape |
| Eagles (2004) | Conference paper | – | - Political/ Political turbulence, war and terrorism |
| Eagles (2014) | Journal of Sustainable Tourism | – | - Environmental / Protected areas |
| Enger et al. (2014) | Journal of Tourism Futures | Norway | - Social/ Population growth, ageing, urbanization, values and lifestyles - Technological/ Transportation, information and communication technology (ICT) - Economic/ Fuel costs, economic growth in emerging economies - Environmental/ Climate change |
| EU (2014) | Report | EU | - Social/ Values and lifestyles |
| ETC (2014) | Report | China | - Economic/ Economic growth in emerging economies |
| Evans et al. (2003) | Butterworth-Heinemann /Book | – | – |
| Falk (2010) | Tourism Management | Austria | Environmental/ Climate change |

| Author/year | Journal | Location | Megatrend/sub-trend presented in report |
|----------------------------------|---|-----------------|---|
| Farmaki and Papatheodorou (2015) | Tourism Planning & Development | Cyprus | - Technological/ Transportation |
| Frantál and Kunc (2011) | Annals of Tourism Research | Czech Republic | - Environmental/ Land use and landscape change |
| Fredman (2008) | Tourism Economics | Sweden | - Economic/ Economic growth in developed economies |
| Fredman & Haukeland (2016) | Book chapter | – | - Environmental / Protected areas |
| Fredman and Tyrväinen (2010) | Scandinavian Journal of Hospitality and Tourism | – | - Social/ Urbanization - Environmental/ Land use and landscape change |
| Frost et al. (2014) | Journal of Travel Research | Asia-Pacific | - Social/ Population growth and ageing, health, urbanization, values and lifestyles - Technological - Economic/ economic growth in emerging economies - Political/ Political turbulence, war and terrorism |
| Fuggle (2015) | Web Article | – | - Social/ Values and lifestyles - Technological/ Information and communication technology (ICT) - Economic/ Fuel costs |
| Gagné et al. (2014) | WIREs Climate Change | – | - Environmental/ Climate Change |
| Glover and Prideaux (2009) | Journal of Vacation Marketing | Australia | - Social/ Population growth and ageing |
| Gössling and Buckley (2016) | Journal of Cleaner Production | – | - Environmental/ Climate Change |
| Gössling et al. (2012) | Annals of Tourism Research | – | - Environmental/ Climate change |
| Graham and Shaw (2008) | Geoforum | – | - Technological/ Transportation |
| Grayling (2016) | Web Article | – | - Technological/ Information and communication technology (ICT) - Economic/ Sharing economy |
| Griffiths (1998) | Report | Wales | - Technological/ Transportation |
| Haanshus (1998) | Conference paper | Norway | - Environmental/ Land use and landscape change |
| Hajkovicz et al. (2013) | Report (CSIRO) | Australia | - Social/ Population growth and ageing |

| Author/year | Journal | Location | Megatrend/sub-trend presented in report |
|----------------------------------|---|-----------------|---|
| Hall et al. (2013) | Tourism Recreation Research | – | - Technological/ Transportation |
| Haukeland et al. (2010) | Scandinavian Journal of Hospitality and Tourism | Norway | - Social/ Increasing cultural diversity |
| Haukeland (2011) | Journal of Sustainable Tourism | Norway | - Environmental / Protected areas |
| Hausmann et al. (2017) | Conservation Letters | South Africa | - Technological/ Information and communication technology (ICT) |
| Hawkins and Khan (1998) | Butterworth-Heinemann/ Book Chapter | – | - Economic/ Economic growth in developed economies |
| Holden and Sparrowhawk (2002) | International Journal of Tourism Research | Nepal | - Social/ Health |
| Huzly et al. (2016) | Eurosurveillance | Germany | - Political/ Health risks |
| IEA wind (2010) | Report | Norway | - Environmental/ Land use and landscape change |
| Innovasjon Norge (2015) | Report | Norway | - Economic/ Economic growth in developed economies |
| IPCC (2013) | Report | – | - Environmental/ Climate change |
| Jalilvand et al (2012) | Journal of Destination Marketing and Management | Iran | - Technological / ICT |
| Juul (2015) | Report | – | - Economic/ Sharing economy |
| Kietäväinen and Tuulentie (2013) | Journal of Sustainable Tourism | Finland | - Environmental/ Climate change |
| Kim et al. (2005) | Journal of Travel Research | China | - Economic/ Economic growth in emerging economies |
| Klint et al. (2012) | Tourism in Marine Environments | Vanuatu | - Environmental/ Climate change |
| Klinthong and Yeemin (2012) | Conference Paper | Thailand | - Environmental/ Climate change |
| Konu (2015) | Tourism Management | Finland | - Social/ Health |
| Konu et al. (2010) | Journal of Vacation Marketing | Finland | - Social/ Health |
| Korpela et al. (2014) | Journal of Environmental Psychology | Finland | - Social/ Health |
| Lee et al. (2009) | Scandinavian Journal of Forest Research | Japan | - Social/ Health |

| Author/year | Journal | Location | Megatrend/sub-trend presented in report |
|-----------------------------|---|------------------|---|
| Lee et al. (2014) | Evidence-Based Complementary and Alternative Medicine | Japan | - Social/ Health |
| Levy (2015) | Web Article | – | - Technological/ Information and communication technology (ICT) |
| Li (2010) | Environmental Health and Preventive Medicine | Japan | - Social/ Health |
| Lilley et al. (2010) | Energies | USA | - Environmental/ Land use and landscape change |
| Lund and Jóhannesson (2014) | Scandinavian Journal of Hospitality and Tourism | Iceland | - Technology/ Transportation |
| Lyon et al. (2011) | Scandinavian Journal of Hospitality and Tourism | Finland | - Social/ Population growth and ageing |
| MacDonald et al. (2000) | Journal of Environmental Management | Europe | - Environmental/ Land use and landscape change |
| MacKay and Couldwell (2004) | Journal of Travel Research | Canada | - Technological/ Information and communication technology (ICT) |
| Massad et al. (2016) | The Lancet | Brazil | - Political/ Health risks |
| Matzler et al. (2014) | Journal of Business Strategy | – | - Technological/ High-tech equipment |
| Mckee et al. (2004) | Biological Conservation | – | - Social/ Population growth and ageing |
| Medieministeriet (2011) | Report | Nordic Countries | - Economic/ Economic growth in developed economies |
| Mehmetoglu (2007) | Journal of Sustainable Tourism | Norway | - Economic/ Economic growth in developed economies |
| Meng and Uysal (2008) | Journal of Sustainable Tourism | USA | - Social/ Gender |
| Moen and Fredman (2007) | Journal of Sustainable Tourism | Sweden | - Environmental/ Climate change |
| Moisey and Bichis (1999) | Tourism Recreation Research | USA | - Social/ Population growth and ageing |
| Monz and Kulmatiski (2016) | Journal of Outdoor Recreation and Tourism | USA | - Technological/ High-tech equipment |

| Author/year | Journal | Location | Megatrend/sub-trend presented in report |
|--------------------------------|---|-----------------|---|
| Morita et al. (2007) | Journal of the Royal Institute of Public Health | Japan | - Social/ Health |
| Moutinho and Ballantyne (2013) | Channel View Publications/Book Chapter | – | - Economic/ Economic growth in emerging economies |
| Mueller and Pell (2016) | Conference Paper | – | - Technological/ High-tech equipment |
| Norden (2016) | Report | Finland | - Economic/ Economic growth in developed economies |
| Nyaupane and Chhetri (2009) | Tourism Geographies | Nepal | - Environmental/ Climate change |
| OECD (2016) | Report | Finland | - Economic/ Economic growth in developed economies |
| Ohtsuka et al. (1998) | International Journal of Biometeorology | Japan | - Social/ Health |
| Olipra (2012) | Conference Paper | – | - Technological/ Transportation |
| Park et al. (2008) | Scandinavian Journal of Forest Research | Japan | - Social/ Health |
| Pearce and Moscardo (2015) | Conference Paper | – | - Technological/ Information and communication technology (ICT) |
| Pickering (2011) | Journal of Sustainable Tourism | Australia | - Environmental/ Climate change |
| Pietilä et al. (2015) | Journal of Outdoor Recreation and Tourism | Finland | - Social/ Health |
| Popham and Mitchell (2006) | Journal of Epidemiology and Community Health | UK | - Social/ Changing work patterns |
| Prideaux (2002) | International Journal of Tourism Research | Australia | - Technological/ Transportation |
| Prideaux and Coghlan (2010) | Journal of Vacation Marketing | Australia | - Technological/ Information and communication technology (ICT) |
| Roberts (2015) | Leisure Studies | UK | - Social/ Changing work patterns |
| Ryan and Mo (2001) | Journal of Vacation Marketing | New Zealand | - Economic/ Economic growth in emerging economies |
| Sæþórsdóttir (2012) | Tourism Planning & Development | Iceland | - Environmental/ Land use and landscape change |

| Author/year | Journal | Location | Megatrend/sub-trend presented in report |
|--------------------------------|---|-----------------|---|
| Scott (2011) | Journal of Sustainable Tourism | – | - Environmental/ Climate change |
| Scott and Gössling (2015) | Tourism Recreation Research | – | - Social/ Population growth and ageing - Technological/ Transportation, information and communication technology (ICT) - Economic/ Fuel costs, economic growth in emerging economies - Political/ Political instability, changes in border regulations |
| Scott et al. (2007) | Tourism Management | Canada | - Social/ Population growth and ageing |
| Shultis (2012) | Conference Paper | New Zealand | - Technological/ High-tech equipment |
| Shultis (2015) | Conference Paper | New Zealand | - Technological/ High-tech equipment |
| Sonter et al. (2016) | PLoS one | USA | - Technological/ Information and communication technology (ICT) |
| Steiger (2011) | Tourism Review | Austria | - Environmental/ Climate change |
| Sullivan (2014) | Patent Report | – | - Technological/ High-tech equipment |
| Tangeland, and Aas (2011) | Tourism Management | Norway | - Social/ Changes in household composition |
| Tangeland et al. (2013) | Scandinavian Journal of Hospitality and Tourism | Norway | - Social/ Changes in household composition, gender |
| Tervo (2008) | Scandinavian Journal of Hospitality and Tourism | Finland | - Environmental/ Climate change |
| Thrane and Farstad (2011) | Tourism Management | Norway | - Economic/ Economic growth in developed economies |
| Torvinen and Brosy (2010) | Bachelor Thesis | Finland | - Economic/ Economic growth in emerging economies |
| Tsunetsugu et al. (2013) | Landscape and Urban Planning | Japan | - Social/ Health |
| Tsunetsugu et al. (2010) | Environmental Health and Preventive Medicine | Japan | - Social/ Health |
| Tussyadiah, and Pesonen (2015) | Journal of Travel Research | USA/Finland | - Economic/ Sharing economy |

| Author/year | Journal | Location | Megatrend/sub-trend presented in report |
|---------------------------------|---|-----------------|--|
| Tutek et al. (2015) | Report | – | - Social/ Ageing, changing work patterns - Political/ political turbulence, war and terrorism |
| Tyrväinen et al. (2014) | Journal of Environmental Psychology | Finland | - Social/ Health |
| UN (2015) | Report | – | - Social/ Population growth |
| UN (2014) | Report | – | - Social/ Urbanization |
| UNEP (2011) | Report | – | – |
| UNTWO (2011) | Report | – | - Political/ Changes in border regulations |
| Uusitalo (2010) | Scandinavian Journal of Hospitality and Tourism | Finland | - Social/ Urbanization |
| Venkatraman and Tyler (2011) | Conference Paper | – | - Social/ Health |
| Vespestad and Mehmetoglu (2010) | European Journal of Tourism Research | Norway | - Social/ Increasing cultural diversity |
| Vinge and Flø (2015) | Scandinavian Journal of Hospitality and Tourism | Norway | - Environmental/ Land use and landscape change |
| Vistad and Vorkinn (2012) | Forest Policy and Economics | Norway | - Social/ Increasing cultural diversity |
| Wall-Reinius and Bäck (2011) | Scandinavian Journal of Hospitality and Tourism | Sweden | - Social/ Population growth and ageing |
| Wall Reinius & Fredman (2007) | Annals of Tourism Research | Sweden | - Environmental / Protected areas |
| Warren and McFadyen (2010) | Land Use Policy | Scotland | - Environmental/ Land use and landscape change |
| Więckowski et al. (2014) | Geographia Polonica | Poland/Slovakia | - Technological/ Transportation |
| White et. al (2016) | Report | USA | |
| Wight (2001) | The Encyclopedia of Ecotourism (Book chapter) | – | - Social/ Population growth and ageing |
| Williams and Shaw (2009) | Land Use Policy | – | - Social/ Population growth and ageing |
| Wong (2003) | Journal of Contemporary China | China | - Social/ Values and lifestyles |

| Author/year | Journal | Location | Megatrend/sub-trend presented in report |
|---|---|-----------------|---|
| World Travel and Tourism Council (2015) | Web Article | – | - Economic/ Sharing economy |
| Wray et al. (2010) | Scandinavian Journal of Hospitality and Tourism | New Zealand | - Social/ Increasing cultural diversity |
| Xiang and Gretzel (2010) | Tourism Management | USA | - Technological/ Information and communication technology (ICT) |