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Asset Management

Copenhagen Institute for **Futures** Studies
Instituttet for **Fremtids**forskning

Members' report 4/2019

YOUR LIFE IN 2044

SUMMARY

The report combines fact with fiction in three storylines set in Copenhagen 25 years from now, seen through the eyes of a young mother, a lord mayor and a business leader. Underlying the three narratives is a scenario for the world in 2044, constructed collectively by the futurists at CIFS based on the latest research from the Institute's key topics.

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FOREWORD

Pictet Asset Management has been working with the Copenhagen Institute for Futures Studies (CIFS) for over a decade to establish a deeper understanding of megatrends – the powerful secular forces that are changing the environment, society, politics, technology and the economy.

CIFS is a leading global think tank and consultancy. CIFS uses a wide range of research methods, developed over the last 40 years, which include megatrend analysis, scenario planning, risk management, innovation initiatives and strategy development.

Through our partnership with CIFS, we have devised an investment framework that incorporates CIFS' 14 megatrends. The framework – which includes trends such as Demographic Development, the Network Economy, Focus on Health, Sustainability and Technology Development – enhances our thematic equity capabilities and informs the construction and development of our thematic equities strategies such as Water, Robotics or SmartCity.

As CIFS' partner, Pictet Asset Management has access to research into areas not normally covered by the investment analyst community such as changes in societal attitudes and beliefs, the impact this has on the environment and the business sector, and the acceleration of technological development. We are proud to be associated with CIFS and would like to share some of their research with you. We have sponsored this publication and hope you find it as insightful as we do.

HANS PETER PORTNER
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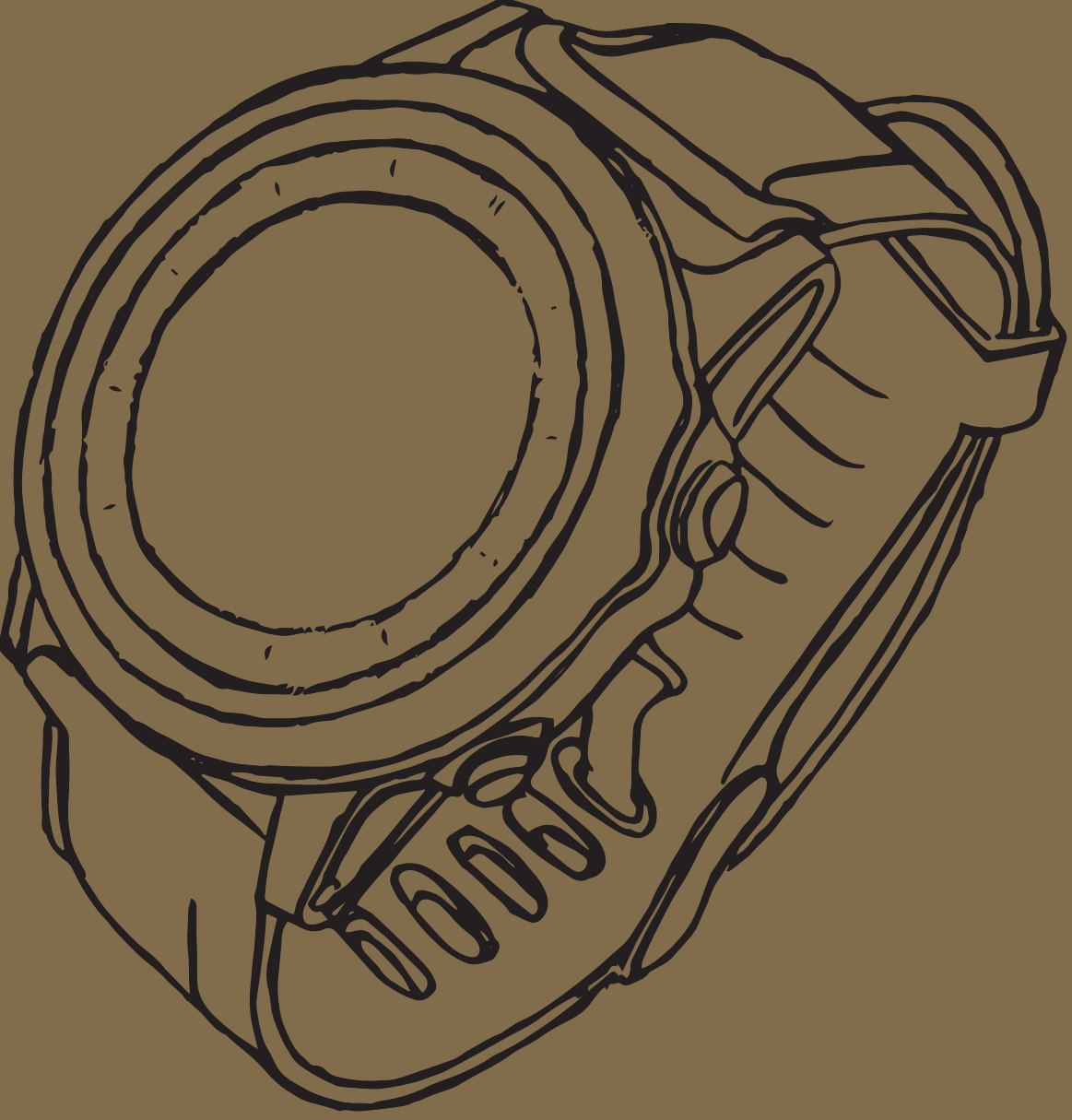
Members' report 04/2019

YOUR LIFE IN 2044



FOREWORD

This year, CIFS celebrates its 50th anniversary as a non-profit futures studies think tank and advisory. When CIFS was founded in 1969, reports like the one you are about to read were written on typewriters, no doubt in smoke-filled offices populated by futurists in tweed jackets. We imagine they spent their lunchbreak discussing the Apollo moon landings, the last Beatles performance and the hippies at Woodstock. Perhaps they read with awe the news of the first ever artificial heart implant and discussed Danish legalisation of pornographic imagery. Perhaps they spotted the scarcity of time as a trend and predicted a bright future for the Concorde. It was 1969 after all, and a lot of stuff was happening. Some of the change was technological, some was societal. The latter has a track record of shaping the future far more than we give it credit for. Often, when we look ahead, we cannot help but imagine technology as one of the key axes. When we look back, it was often the societal tectonic plates that moved the world. It is the ordinary day to day dynamics that bring any future to life.

Through three storylines we follow the everyday lives of Copenhageners in the year 2044. Through their interaction with the world 25 years from now we want to paint the future in colour. We do this while staying cognizant of the futures being plural and bound to be shaped in ways we may not even imagine. But one thing we consider a given, there will be a young mother, an ageing business leader and a city Mayor somewhere, who will wake up and spend a day in 2044 Copenhagen. They will move in parallel, interacting and colliding with different aspect of our future society, and who knows, they may even meet.

This report provides a sneak peek into what it means to work with the future and how there are different trajectories and hence consequences for the trends we observe. The future is inspired by vision and innovation, but it unfolds in our living rooms. In this anniversary report we try to bridge that gap. We hope the reader will take this journey in time with us.

Daria Krivonos, CEO.

INTRODUCTION

Futures studies is the systematic study of possible, probable and preferable futures. At the core of the discipline is real-world utility for individuals, companies and organisations. CIFS celebrating its 50-year anniversary as an independent futurist think tank and advisory is testament to the longevity and usefulness of futures studies. Since CIFS was founded in 1969, the discipline has evolved from a systems-thinking, forecasting-based approach to one that is multi-layered and highly participatory, meaning that stakeholders take a central role in mapping out the future(s) and plan their responses accordingly.

Yet, futures studies has its roots as much in fiction as in fact-based foresight and scenario mapping. In fact, the author H.G. Wells, most known for his great works in science fiction , can be considered the discipline's founder. His book, *Anticipations* (1901), was the first ambitious and widely read survey of the future based on technological, behavioural and geopolitical trends of the time. By combining his vivid imagination for future technological and social innovation with his sharp, analytical eye, Wells foresaw a future with aircraft, crowded highways, suburban sprawl and sexual freedom well before any of these things existed. On a bleaker note, he also later correctly predicted the outbreak of global war with a conflict between Germany and Poland as its genesis. Wells called for the invention of a new science – one that had as its goal a systematic exploration of the future that could outline *the shape of things to come* (a term he coined in a book of the same name).

Of course, science fiction doesn't always get things right. The metropolitan hellscape of *Blade Runner*, set in November 2019, is a far cry from what Los Angeles actually looks like today. Although the movie correctly anticipated a world impacted by climate change and a resulting collapse of eco-systems, we don't yet have flying cars and replicants indistinguishable from human beings – who knows if we ever will? Not that this matters. The point of the genre is more often to provoke than to predict. The same could be said of futures studies. Since Wells laid the foundation for the discipline, the emphasis of future studies has shifted

from *predicting the future* to *mapping possible futures* – from linear to kaleidoscopic thinking – and a variety of methods have been developed and refined for this purpose. Futurists today are less occupied with correctly guessing what the next technological gadget or geopolitical upset will be, and more occupied with widening their field of vision to the many potentialities contained in the cross-sections of trends, uncertainties, wildcards and aggregated developments that lie ahead. The goal of futures studies today, most often, is to help organisations, industries and individuals better understand and approach the future proactively. This is done by continuously challenging our preconceptions in order to open new avenues of thought and action.

However, just as in Wells' day, creative, out-of-the-box thinking is a crucial ingredient in imagining alternative futures that can challenge habitual thinking, whether in the shape of megatrend analysis and scenario planning or through storytelling. In recognition of this, we have chosen to mark the Institute's 50th anniversary by returning to the roots of futures studies and combining fact with fiction in three narrative storylines that take place in Copenhagen 25 years from now, in 2044.

Throughout the three main chapters of this report, you will meet the Young Mother, the Business Leader and the Lord Mayor. Each of them is faced with their own choices and challenges as they view and interact with the world of 2044 from their individual vantage points. The Young Mother, born in 2019, is at cross-roads in life, having to juggle education, career decisions, communal co-living and raising a child. The Business Leader, whose company is launching a new product on this day in 2044, must navigate in an international business context heavily affected by geo-political changes – chief among them the rise of China as a more demanding player on the world stage. The Lord Mayor faces decisions relating to all the challenges of governing a city in 2044.

The thoughts and actions of the characters are affected by their different time

perceptions. Time perception is a framework developed by CIFS to diagnose a person's attitude towards the future. The framework contains a set of segments that individuals fit into based on their attitudes towards societal and cultural change, technology, work, consumption, family and more. A person's time perception can be past-, present-, or future oriented. Which segment we fit into is based on how we view change, how we navigate in the world and whether we see the future as a promising or threatening place.

Underlying the three storylines is a scenario for the world in 2044, constructed collectively by the futurists at CIFS based on the latest research from the Institute's key topics. This scenario was not developed through a usual scenario process, where a select combination of themes containing critical uncertainties make up a matrix grid of possible futures. Rather, it was constructed 'artificially' through a process we call 'assumption-based world building'. In short, we have decided on a series of assumptions — technological, societal, social, geopolitical, cultural — about how the world of 2044 might plausibly look. These assumptions constitute our building blocks that are combined and layered into a comprehensive scenario spanning multiple themes. The purpose of this exercise in worldbuilding is not to forecast the future but to provide the storylines with a backdrop that is consistent and believable. As such, the 2044 scenario should not be taken as a prediction – but as one among multitudes of possible futures.

Although we have not printed the entire list of assumptions that make up the scenario in this report due to its extensive length, we have made a number of assumptions and some of the possible alternative trajectories that exist as clear as possible in the textboxes placed throughout the chapters, acknowledging the great uncertainties and unknowable twists and turns that lie ahead. In these assumptions, we have attempted to give qualified and plausible answers to a range of big questions: How will the fourth industrial revolution transform work and the labour market? How will the international community respond to the climate challenge in the coming decades? What will education look like in 2044?

How will the shifting power balance between East, West, North and South be reflected in our international institutions? What will the city look like 25 years from now? Questions like these are difficult to answer with more than informed guesses, and only time will tell how the developments play out. However, we are hopeful the reader will agree that entertaining questions like these in a narrative form can be a fruitful exercise that can help open our patterns of thought and action in new directions.

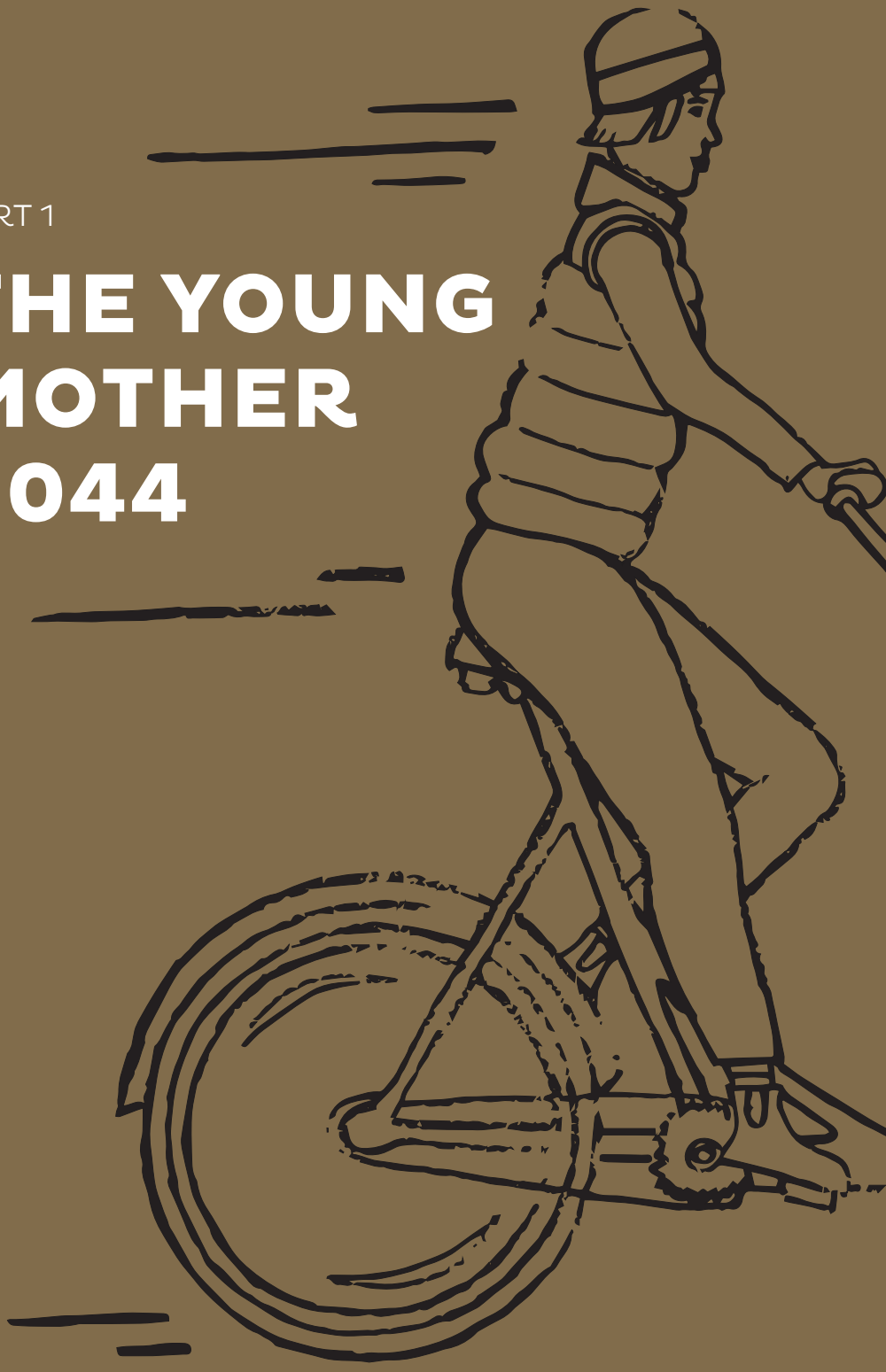
The reader might ask why we have chosen 25 years and not 50 years as our timeframe, considering that the report marks the 50th anniversary of CIFS. The first part of the answer is that 50 years is a very long time, and it is extremely difficult to construct plausible scenarios and storylines when looking that far into the future. In comparison, 25 years is a much more manageable timeframe. Think about how much the world has changed since 1969 – and how much of that change has happened in unforeseen directions. In 1969, mankind first sent people to the moon. In 2019, spacefaring has stalled, contrary to what everyone seemed to expect at the peak of the space race. However, most of us carry around devices with millions of times the memory and processing power of the Apollo 11 computer in our pockets. No one predicted that (or could have) in 1969.

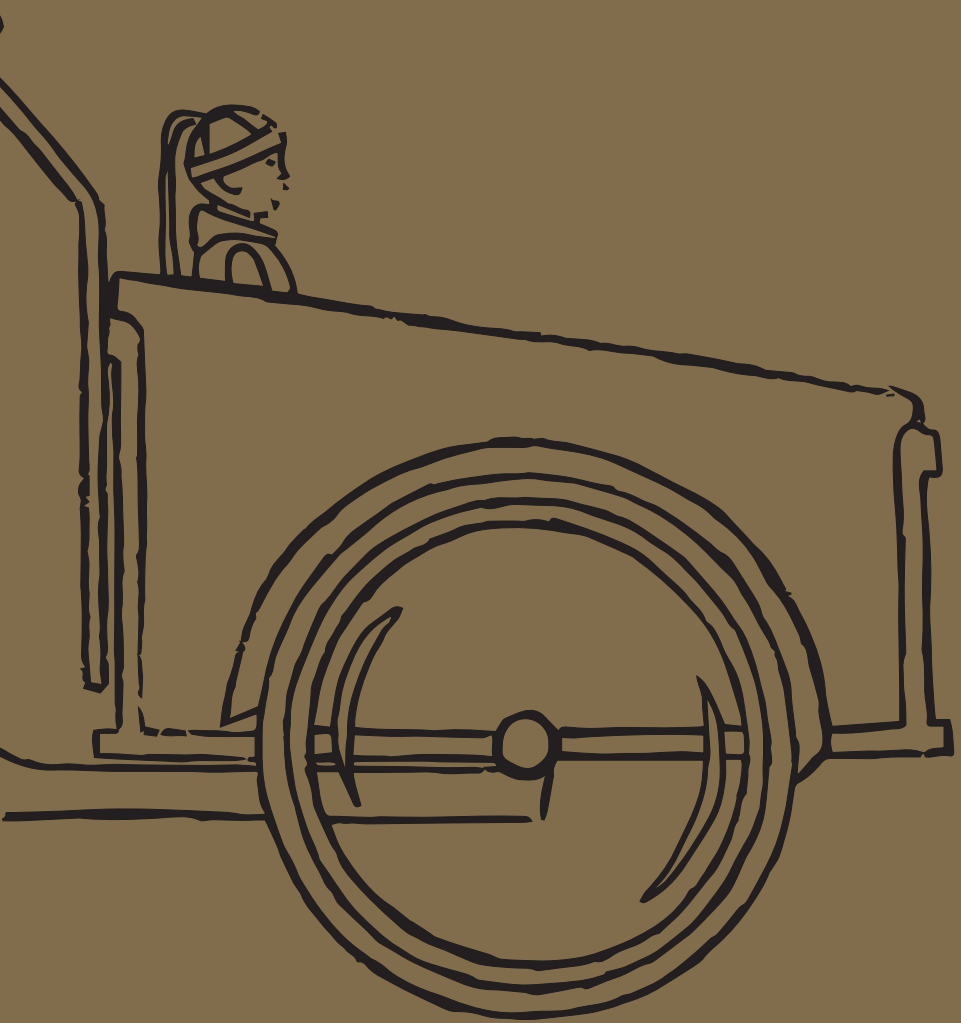
The second part of the answer is that we are continuing a tradition. Twenty-five years ago, in 1994, CIFS published a report titled *The World in 2020* which marked the Institute's 25-year anniversary. Much like this report, *The World in 2020* based its analysis on a range of (primarily macro-economic, geo-political and technological) assumptions about the future, which included the rise of the global middle class, the emergence of English as a truly global language and the ongoing fragmentation of the media landscape. This report is different in that we have chosen to highlight our assumptions through fictional storylines to breathe some life into our research.

We hope the reader will find both inspiration and learning in this approach.

PART 1

THE YOUNG MOTHER 2044





MORNING

My baby didn't sleep much last night, but I am not super tired. I am used to it after the first six months of mixed parental leave. Plus, the smart sitter helps both me and the baby fall back asleep quickly. When we had the baby, my boyfriend and I got help to buy the sitter from of our parents and grandparents. It was expensive, but every little help and extra 30 minutes of sleep is worth every Euro! I really like how it is integrated into the rest of the apartment's systems and I like the feeling of having an extra set of eyes and ears move with me from room to room – instead of the old sitters standing steadily in a corner like monoliths as the earliest versions of smart speakers and smart home systems did.

The sitter reads the baby's sleeping patters and small, almost invisible biological and neurological signals, and alerts me when she is about to wake up. The fact that I am alerted just before instead of after she wakes up fully and "calls for help" makes it so much easier to get her to fall back to sleep… most of the time.

The baby is constantly monitored. It started with the smart socks – developed for old school Apple Watches and Fitbits – that monitored vitals such as heartbeat and breathing and sent the data to other devices. Now everything is measured. Data on nutrition, detailed sleeping patterns, physical and cognitive development and all other relevant data that helps parents take care of their child is collected and analysed to aid the baby's growth and development.

In all honesty, I don't know how parents used to manage without technology helping to keep an eye on their children's development. We are two parents, and we get plenty of help from the people we share the building with, but without the monitoring technology, it feels like we would be raising a child in the stone age.

I especially could not live without the detailed schedule for the most personalised and effective childcare and parenting. The schedule is adjusted and re-adjusted every day to fit my baby's individual development. Then I know how to adjust my own nutrition and my behaviour towards her. Fortunately, the system self-adjusts with our grocery delivery so that I make sure my husband and I eat the right veggies, fruits and grains to fit the baby's developments schedule.

The baby's nutrition is prioritised over our own while I breastfeed, and we both stay at home and cook at home most days. Today, for breakfast, I'll only have an apple and a soymilk latte to-go. I am not vegan per se (that was a very 2020s fad), but I eat mostly plant-based food now – it is much easier to do after the pro-Earth

EU meat and dairy taxes were introduced in 2040, but I probably would anyway. You have to be the change you want to see in the world, as the saying goes.

TIME PERCEPTION: CREATOR

CIFS has developed a framework for analysing how individuals perceive and engage with the future: *time perception*. The framework contains a set of ideal types that individuals fit into based on their attitudes toward societal and cultural change, technology, work, consumption and more.

The young mother is a 'creator'. She has a proactive approach to the future, and she sees change as an opportunity rather than something threatening that should be avoided. Creators have faith in the transformative power of new technology, value personal and professional growth and believe that change needs to come from the bottom up. Creators tend to be young, independent and future-oriented metropolitans. Typical careers for creators are entrepreneurs or researchers at universities. In 2014, when CIFS last performed the nation-wide time perception survey in Denmark, 26 % of Danes were creators, but a higher proportion of men fit into this category than women. We assume this could easily change towards 2044.

We live in a 'co-live', one of the many of its kind in Copenhagen. The various commercial co-living concepts are super different and there is something for everyone. Most of the big, corporate concepts, such as WeLive, crashed in the 2020s and now smaller, independent co-created housing concepts dominate the market. Most are rental, but it is becoming more common to buy a share in a co-living community.

It was an easy concept to introduce to the Danish housing market since Danes were used to both traditional 1970s hippie-type communes and cooperative housing associations where the residents of a building would co-own the property t. However, in cooperative housing associations, the only thing the residents shared was the address, whereas in the old-school communes, they shared way too much. In modern co-lives, the philosophy is different, and we have many reasons to want to stay here instead of getting our own places.

First of all, we want to stay close to Copenhagen's city centre, and in the middle of the city, a co-live is much cheaper than owning a two-bedroom apartment or house. Most important to us is the sense of community and the socialising and company that all the other residents provide.

The fact that we have our own private two-room quarters to withdraw to provides the socialising-privacy balance we need. We quickly realised we did not need a lot of space or a lot of things. We share the kitchen, guest rooms and common rooms with the rest of the co-live residents, and in return we get the newest and best entertainment and cooking technology, yoga, tennis and gaming nights arranged by the residents.

My boyfriend and I also both get coaching from the house counsellor. My parents think it is odd that we seek advice from a stranger, but this is something that a lot of young people do now. We just make the most of the offers that the co-live has, and it never hurts talking to people – we can choose to follow their advice or find our own way. The counsellor helps me interpret my emotions and work on improving all my social skills. Relationships are hard work! I also get help with very practical things like Copenhagen municipal bureaucracy stuff, budgeting, how to get stains out of the clothes I wash and how to consume in the most climate-friendly way. The co-live provides me with a sense of community, and it makes life less lonely.

I finish my breakfast in the common room and run out the door with the baby in my arms. My box bike is parked in the bike-garage and I quickly arrange everything so that we can get on our way. I drive outside and on to the street. It is wet from the quiet and soft autumn rain that seems to fall continuously during September and October.

The street is busy with bikes and pedestrians and no one respects any rules. This makes it a little complicated to get around, but I am grateful there are almost no cars in the inner city anymore. The baby and I are on our way to meet my *learnings and education social group*.

I go to classes once or twice a week with everyone who studies social science in Copenhagen. I spend the rest of my allocated education and learning time studying at home, adding to the input and discussions in the online workspaces and meeting up with other students in study groups. We do not have a set time; when and where we meet is often decided on the fly. Our AIs keep track of when it is best for

PARENTHOOD AND CO-LIVING IN 2044

It is increasingly common (but not yet the norm), for progressively minded young people both in and out of relationships to choose to live in *co-living facilities*, either the commercial ones that have sprung up both in large and small cities and in rural areas or with friends and family in their own co-living situations. The commercial co-living industry is booming, and the 'total-service-we'll-fix-it-for-you' way of living is also thriving. Most people, when single, find it easier to live with others, both for convenience and sharing-economy purposes and to avoid loneliness. These types of communities used to be common mostly for students and the elderly, but people of all age groups now embrace this way of life.

Intensive fertility research and breakthroughs have made it possible for women to become pregnant and give birth to healthy children while in their 40s and increasingly in their 50s. Fertility research now focuses on both sexes when it comes to low birth rates – as opposed to just focusing on women, - and campaigns during the 2020s and 2030s asked men to take responsibility for bringing more children into the world. The leave period is longer than it has ever been – each parent takes more than a year of parental leave, a lot of it together, sometimes part-time. Workplaces and society in general have adapted to fathers taking more leave. For example, their pay is now fully reimbursed by decree of the EU. Municipalities have set up *daddy-playgroups* for men on parental leave – both men and women who take parental leave use it to network and upskill as well as create an intimate relation to their children. However, a small number (about 15% of parents) choose to only let the mother take parental leave.

Alternative trajectories: In an alternative scenario, no initiatives are taken to encourage citizens to have children earlier in life. In 2044, the age by which the majority of women have their first child may therefore be higher than today (29.3 in 2018, Statistics Denmark). With the huge advances in fertility treatment, men and women alike might also see the scientific advances as a free pass to wait even longer to have children. The kind of labour and parental leave reforms assumed in the storyline could also be deemed economically unfeasible and be blocked by the industry and employers' associations.

HOUSING AND COMMUNITY IN 2044

Housing reforms in Copenhagen during the 2030s gave economic incentives for real estate developers to build new housing for two very concrete purposes. First, Copenhagen needed to solve the demand for housing for people with low and middle incomes, which followed the 2020s baby boom and Copenhagen becoming one of the most attractive cities for students and expats from all over the world.

Second, in the late 2020's, Copenhagen realised, along with almost all other larger cities, that a massive loneliness and mental health crisis was underway. The proportion of people living alone, either by choice or involuntarily, was rising in most of the developed world (after having gone through a period of decrease in Copenhagen up until the 2020s). At the same time, mental health deteriorated, and suicide and depression rates grew. Experts disagreed about the exact causes. Among the explanations, apart from the increase in singles, were job automation, hyper-individualisation and our increasingly intimate relationship with technology and social media.

The Copenhagen Municipality chose to fight the loneliness crisis with, among other things, housing reforms that made it very easy for people of all ages and incomes to always be part of a sustainable and affordable community. The housing reforms contributed to Copenhagen becoming Europe's most sustainable city in 2036 and in 2040.

Alternative trajectories: In a different scenario, an increasing number of people choose to live in single households, and providing smaller living spaces becomes a political priority. New housing units are developed for this purpose. We could imagine that the trend towards small-space living might lead to the emergence of a market for what we could call "commercialised living rooms" in the city. Cafés might start branding themselves as "your other living room", offering cheap tea, coffee, snacks in a homely setting.

all of us to meet and find the most ideal time and place. Our lives are so different that it is easier to meet up whenever it suits us rather than a specific time and specific place.

We are all different ages and come from different backgrounds. Most students are in their 20s or 50s – these are the two life phases where education takes up most time for most people. I think education needs much reform, and many students protest a lot. The main issue right now is how almost all education is automated and it seems to be continuing in that direction. AIs can support education in many ways, but the technology is not perfect, and there is no substitute for face-to-face situations with professors, other academics and fellow students. We want proximity back and crave intimate learning environments with people we know well and who know us well.

Still, I think the digitalisation of education has had more positive than negative effects. For one, it has made education more freely available. The textbooks and journals I need to access are open content, and I can find lectures by leading teachers and scientists for free online. I can also easily join online courses where an AI tests my skills and assigns and corrects my homework. Then there are the VLEs — I think it stands for virtual learning environments. Basically, VLEs are realistic simulations of experimental labs and true-to-life interactive modelling of physical settings or exotic environments. VLEs aren't that relevant in my field of study, but my boyfriend, who is studying to become an architect, uses them a lot when modelling buildings and physical environments.

For me, the choice to study was, foremost, a matter of personal development and betterment, and less about getting a degree. Still, I also plan on being able to utilise what I am learning in a work context someday. I will try finding a job after I graduate. Travelling more would be great, so maybe I should look for a job which includes that.

I am also considering a career as a scientist at a research university. Fortunately, I do very well on my performance exams. I find studying much easier than many of my education and learning social group mates do. I do not tell my group this, but I secretly hope to be invited to join one of the LABs or HUBs at one of the universities. The LABs and HUBs are basically doing the same thing with research that we are doing in my education and learning social group, but they get to use data from the real world and not simulated data like we use. And their results are often applied in real-world situations, for example in product development and

HIGHER EDUCATION IN 2044

In 2044, the traditional approach to higher education – studying for a few years before entering the labour market for a 50-60-year career – is no longer sustainable. There has been a societal shift from focusing on studying for degrees to focusing on lifelong and lifewide learning (learning in many different contexts outside a formal education setting). Society is adopting an 'open-loop' approach to education, where students and workers enter the open loop at multiple times throughout their lives as they seek to gain skills and knowledge.

Some universities have started reverting to their traditional role of being primarily research institutions. As a result, their enrolment numbers have decreased. However, many young people still seek out the university experience for the sense of community and tradition that higher education offers.

New players (including tech giants) have entered the education sector, and have expanded education offerings beyond traditional university degrees, with more flexibility and ease of access as a result. Global actors offer online courses that are recognised worldwide; it is possible for self-taught individuals to take online exams to certify their skills in certain fields. As a result, the value of traditional degrees has diminished in the job market.

AI has improved the learning experience in many ways. As a standard part of enrolment, students gain access to specialised AI 'tutors' that help and guide them through their learning and education planning pathways. For players in the education landscape, the quality of their AI tutor/teaching software becomes a competitive parameter and something that students consider when choosing which provider to go with.

Alternative trajectories: The shift to an emphasis on skills over degrees is a prerequisite for new players emerging as serious competitors in the education landscape. In a future where a university degree is still considered the 'ticket to play' on the job market (however symbolic the actual value of the degree might be), new players may find it difficult to gain a foothold and offer widely accepted credentials to students. Despite the challenges and criticism levelled against universities in the digital 21st century, they have historically proven to be robust and trusted institutions, some with a 1000-year-old track record as society's leading knowledge institutions. It is reasonable to assume they will retain this role in the future.

policymaking. The research they do has real impact and I'd like to be a part of that.

My chances are good since students who have shown exceptional talent and dedication in online courses and virtual labs may be invited to physical research institutions for further specialised, supervised education and research. I'm not too worried about automation making my education obsolete, especially if I end up going into science and research. Highly skilled professionals are still needed to advance knowledge and science. But I do think about how tech affects us as human beings and what the future will look like — whether we will even have to work for a living with technology taking over more and more work.

AFTERNOON

On my way home from the study group, I swing by the board-game café to meet some of my closest friends, my brothers and sisters from *Service*. I was one of the first generations to complete the mandatory civil and public service program initiated in 2040. Already in 2035, the army draft for men was abandoned and replaced by a new initiative meant to help young people grow and mature while they contribute to society. Everyone is supposed to do service during the last year of secondary education or during a sabbatical year taken after school is finished.

Even though I was very young at the time, I was part of the protests and movements for climate action and sustainable communities in the 2030s. Eventually, after some years of pressure from the public, the social-democratic government picked up some of the movements' goals and the ideas were turned into a new kind of community service. Everyone over the age of 18 must participate unless they have a medical condition that prohibits them, but most people try to hide their medical conditions and participate anyway. It is very popular; you make friends for life and you help make a difference and change society.

Everyone who joins is assigned a service group and receives six months of basic training. The contents of the basic training vary a lot. Mine included first aid, local community clean-ups, substitute teaching in elementary school and some tech brush-ups. Following the basic training, each service group decides on a shared project to spend the next year on. The group can choose a project from a long list of projects put together by the municipality they live in or by the national government. It has also become common for non-governmental organisations to get involved by offering projects for the service groups to chose from. These are very popular as they also include projects overseas, for example helping in a refugee camp or fighting climate change and pollution in other parts of the world.

Some service groups stick together and do some sort of volunteer work after their service has officially ended. Not as frequently, of course, and only when it does not interfere with education, parenting or work. The 'graduated' service groups are highly sought after to help out in elderly care and the health sector. Most retirees in Denmark volunteer as well and the third sector has become a political hot topic in recent years, with parties disagreeing over whether having a voluntary and unpaid workforce is good or bad for the labour market and society in general.

At the café, my old service group and I talk about our hopes and dreams for parenting. I had my baby at 25 – about half of my friends have chosen to have children at a similar age. It is much easier to be a young parent than it used to be, my mom tells me. I am not sure I believe her. Back in the 2010s and 2020s, they did not have as many things to live up to and worry about as we do today. But they should have worried more – about climate change especially, so we didn't have to.

Having a baby at a young age was not a difficult decision for me. The granted parental leave of three years, split between the parents as they like, is almost not enough, but we hope we will get by. Both of us do part time parental leave anyway since we both meet up with our study social groups at least once a week. My mom has been trying to tell me that it used to be uncommon to bring children to work, for meetings and for all other social and more professional events. Judging from what she tells me I think the lines between work and leisure have become much more blurred than they used to be.

I also know plenty of people from my university and several of my friends' parents who are having a second 'set' of children. As with education, the two life phases where people seem to be doing both most of their studying and their childbearing and parenting, are when people are in their 20s or 50s. One of my best friends' mother is pregnant at 55 and is very happy about it. Of course, it is more difficult to conceive, but not nearly as hard as it used to be. Intensive research in fertility has made huge strides in the past couple of decades. Parenting is still hard work and takes up a lot of energy, so most people prefer to have children earlier in life.

One of the other things that has made parenting evolve from when my mom and dad were young is the change in social norms, especially when it comes to being a modern father who devotes much of his time to his children. It apparently did not use to be this commonly accepted.

Today, children are a natural sight at workplaces and educational institutions. I

also read recently that there has also been a noticeable bump in the fertility rate in the last decade following the economic reforms that ensured new parents a larger income just from being a parent and taking time to bring children into the world. So it makes sense. I expect that when I finish breastfeeding, my boyfriend will be the one spending most of the time on leave with our baby. It is 'his turn'; I really like that.

EVENING

I bike home with the baby strapped in on the front of the box bike. It is still raining, and the sky is grey. I look down on the street and notice the pitch black colour of the new, sound- and water-absorbing asphalt below my bike. Almost the colour of an old-school flat screen television tuned to a dead channel.

That night, we hang out with some of the other couples and a few of the singles from the co-live. We talk and drink a bit of wine. It takes ages to decide on something to watch, but we settle on the retro show *Friends* and then a couple of episodes of a new Chinese sci-fi show that everyone in my learning and education study group talked about earlier in the day. It is about space exploration and families and patriotism – hot topics both in entertainment and in politics. Supposedly, the show was co-sponsored by China's National Space Administration.

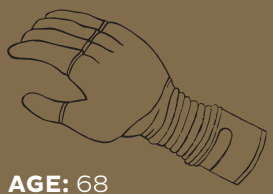
My parents think it is overwhelming that much of our technology and entertainment come from China. In their day, most entertainment came from the United States. Of course, I still watch a lot of old shows from the States, but there is something about the Chinese shows that just speaks directly to me, as if they are tailormade for my state of mind. It is almost as if the Chinese services just make better algorithms to help me figure out what I might want to watch. I guess they got a head start at that with all the data-gathering they did via facial recognition (and surveillance) technology in the 2010s and 2020s.

For dinner we cook the meal that is specifically made to fit our baby's and our own nutritional needs. It is adjusted a bit from the past weeks, I think, probably because it is September now and we need a little more vitamin D since the days are getting shorter and we are going to be spending less time outside.

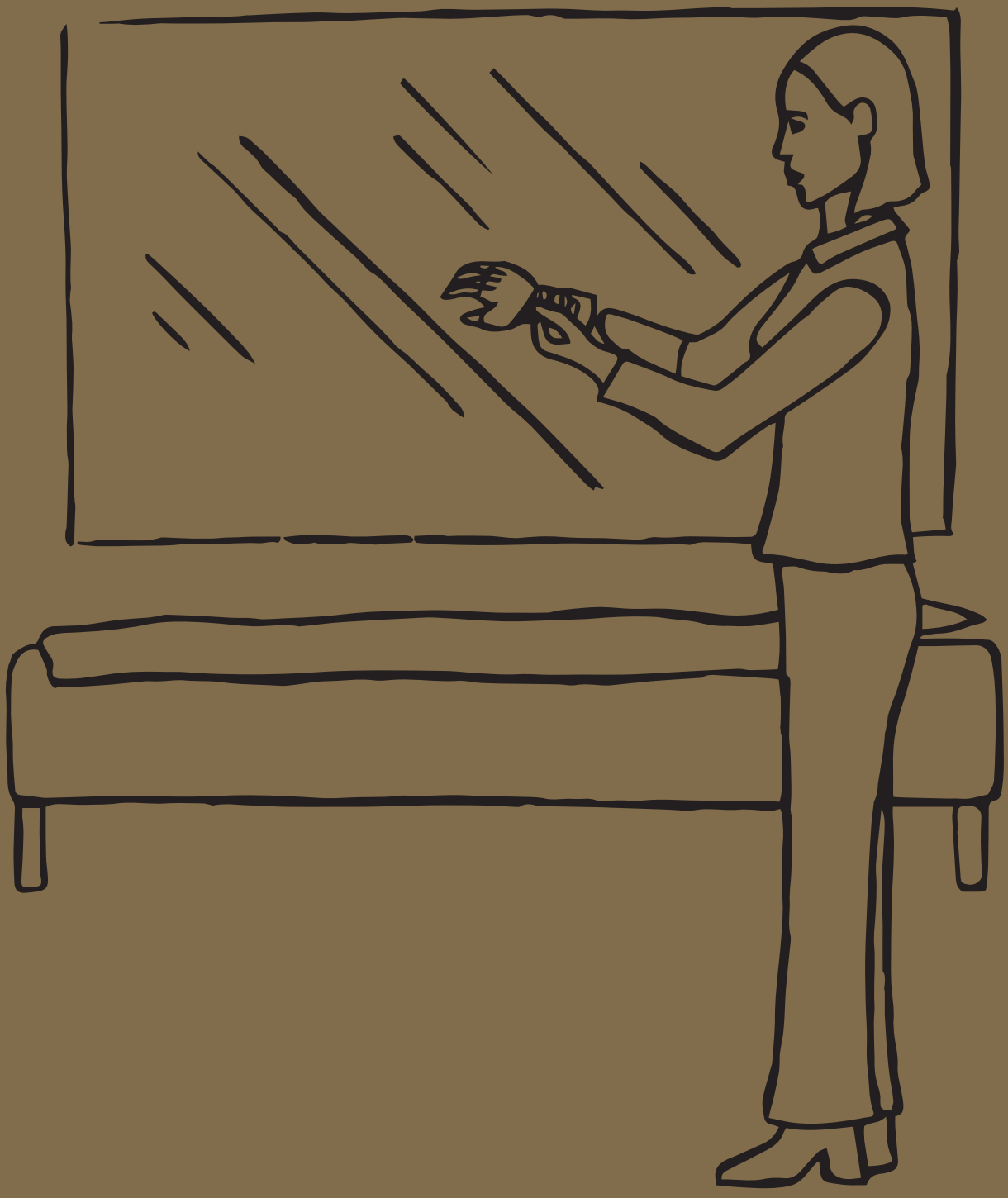
The baby is put to bed around 7 pm. It only takes a few lullabies before she falls asleep. The sitter watches her every move and keeps an eye on her breathing, so I know what the right time is to sneak out of the room. We go to bed early since both of us will probably need to get up a couple of times tonight.

PART 2

THE LORD MAYOR 2044



AGE: 68
SEX: FEMALE
OCCUPATION: POLITICIAN



MORNING

I wake to darkness and the sound of rain on my window – a typical December day in Copenhagen. I remember back when you could expect some frost and snow in December, but there hasn't been a white Christmas here since 2028, and it rarely gets below zero until early January. After a quick shower, I put on my left hand and flex the fingers as the neural links connect. I lost my real hand a dozen years ago to the same multi-resistant infection that killed my husband, but my prosthetic hand is capable of doing most of what the old one could do, except carry heavy loads. I can even feel the heat, texture and softness of what I touch. It is an immense help in getting dressed, eating and doing all the other everyday stuff that most people take for granted.

I go to the kitchen where I am met with the smell of breakfast ready on a tray: scrambled eggs and real bacon (a luxury I permit myself), a small bowl of yoghurt with fresh fruit and roasted oats, a glass of orange juice and, of course, a large cup of coffee. I'm not worth much before that morning cup of coffee – perhaps a sign that I'm starting to get old. I had my 68th birthday two weeks ago but didn't really celebrate except for having dinner with my Mom, my youngest daughter and her beautiful wife. We'll have a big party when Mom turns 100 next year. I fully expect her to live to 110 or more; she is going strong and takes good care of herself, much helped by personalised medicine, health sensors and various robotic aids, including leg braces that help her walk and keep her balance.

I finish eating and leave the cleaning to Mr. Roboto. That is what I call my Japanese kitchen robot, after an old song. It is a bit silly, since it doesn't look much like a person; more like a rolling table with four arm-like appendages but it is advanced enough to prepare simple meals, clear the table and sort and store groceries when they are delivered. It is one of the most advanced household robots on the market today, so it was rather expensive, but it is a big help with physical household tasks. I don't like to hire human servants and I limit the number of smart home services to only a few, in part because I value my privacy at home. That's also the reason why I chose to get a standalone kitchen robot and not one that is integrated into the home AI. Privacy is a rare luxury these days, and I have taken quite a few measures to ensure that at the very least, I have it at home. Of course, you can never feel sure that some new technology isn't spying on you or keeping tabs on your life in other ways. Being a public figure makes me particularly vulnerable.

When I walk out the door, a car is waiting for me as scheduled: one of the municipality's electric self-driving cars that I share with all the other municipal employees

TIME PERCEPTION: NAVIGATOR

CIFS has developed a framework for analysing how individuals perceive and engage with the future: time perception. The framework contains a set of ideal types that individuals fit into based on their attitudes toward societal and cultural change, technology, work, consumption and more.

The Lord Mayor is a 'navigator'. She is generally positive towards change, and she sees the future as a place of opportunity rather than something threatening. Navigators do not consider new technology an obstacle or a burden, although they are rarely first movers on new gadgets. They tend to be well-educated and cultured with a higher than average income. In 2014, when CIFS last performed the nation-wide time perception survey in Denmark, 27% of Danes were navigators, and the proportion of women and men who fit into the category was roughly equal.

THE CAR IN 2044

In 2044, 50% of cars in Europe are electric. This is based on the 'Steady Growth' scenario put forth in the 2016 member's report, *Evaluating the Hype*. In another scenario, 'Green Disruption' (which is considered unlikely), almost half of all cars worldwide will be electric by 2040, with 80% of new cars being electric.

50% of all new cars worldwide have some level of autonomy in 2044 (typically level 4, but some level 3 and level 5). Overall, around 30% of all cars are autonomous, with that number being close to 70% in urban areas of developed countries. Some inner cities (including parts of Copenhagen) are running trials with 'autonomous only zones' for safety reasons. Congestion is still an issue, partly because of empty autonomous cars driving around cities hoping to pick up passengers or moving to/from inexpensive, outlying parking areas. Die-hard 'manualists' exist but are becoming fewer in number.

Alternative trajectories: We can also imagine a scenario where hydrogen cars and/or biofuel cars dominate, and electric cars decline due to slow charging. It is also possible that all new cars are autonomous in 2044, because the technology becomes so cheap that it makes no sense not to include it. Finally, it is possible, although unlikely, that we never really make it to level 4 autonomy, not to mention level 5, because the technical challenges turn out to be greater than imagined.

that need a car to best perform their duties. My house is in the Husum district on the very outskirts of the municipality, a bit more than eight km from City Hall, where I work. I could go by bus and metro, but it would take 15 minutes longer, and I value my time too much for that. Being in a car also allows me to start the day's work, looking over my schedule and (mostly) accepting my assistant's suggestions for answering mail and messages. Part of the drive goes through the new tunnel beneath what used to be the major thoroughfare Ågade; the old, covered stream that used to run beneath the street has been redirected to the surface to become part of a new park, which doubles as drainage in case of heavy rain. In turn, the road has been put into a tunnel, away from bicycles and pedestrians, and cutting several minutes off my travel time.

The rain has stopped by the time I exit the tunnel close to where the old city walls once stood. Only electric, self-driving cars are allowed in this part of Copenhagen, as human drivers would be too much of a hazard to the many pedestrians and bicyclists in the narrow streets. This means that all the municipality's cars, including the one I am sitting in, are also electric and self-driving – you can't very well service citizens you can't reach. I see many empty cars heading away from the centre, perhaps to pick up other passengers, perhaps heading to cheap parking spaces in the outskirts of town. The cars share the central streets with bicycles, which tend to set the speed for traffic – a deliberate policy decision. In turn, most pedestrians refrain from walking in the street, even though they know that the self-driving cars would stop for them. After all, tomorrow they might be the ones driving in one of them or waiting for one to pick them up.

The traffic is moving slowly, and for a while, my car runs alongside a young mother cycling calmly with her child in a box bike. I reflect on how congestion seems to be a problem that can never be solved. You can improve the conditions for car traffic, but that just makes more people go by car, and then the problem remains. It doesn't help that the rise of self-driving cars has made more citizens living more than 40 km from the city centre choose to commute, since they can sleep, eat, watch TV or play video games while being driven to and from work. Improving the local train network has helped, but it is still faster to go by car unless you live and work close to a train station. I can testify to that myself.

Shortly before arriving at City Hall, I pass a rather fat guy on an electric scooter. it has been quite a while since I have seen any of those things, let alone the two together. We have had pills against obesity for almost two decades now, but there are a few holdouts and even some who claim that being fat is a lifestyle choice.

Apparently, big people are even popular with the opposite (or same) sex. I guess there is comfort and safety in the arms of a big bear.

I think back to when electric scooters were very popular – and something of a nuisance – a couple of decades ago. It turned out to be a short-lived fad, which faded out over a handful of years. Killed off by regulations and too many accidents that drew headlines, I guess.

The car lets me off outside the side entrance to City Hall and whizzes off to destinations unknown – perhaps to another civil servant waiting to get to work, perhaps to a nearby underground parking space. No parking spaces are left in the city streets – the space is better used for broader sidewalks and bicycle lanes as well as more trees and bushes that clean the air and absorb rainwater.

The old City Hall itself has changed greatly since I joined the City Council thirty years ago. The most visible changes from the outside are that the old slate roof tiles have been replaced by new tiles with built-in solar panels, and small wind turbines have been mounted between the ridge turrets on the roof ridges. In the mid-2020s, the Council decided that all municipal buildings should provide renewable energy or other climate benefits like living green walls or roofs, and of course, City Hall itself had to lead the way.

In my office, I drink another cup of coffee while skimming through the day's agenda. There is a petition signed by more than 10,000 residents asking for more inexpensive housing. I realise that this is a problem, but there really isn't much I can do within the confines of the city. There will be massive protests if we rezone any of the city's green spaces for housing, and regulations prevent making buildings any taller than they already are. Nine years ago, work started on the artificial island of Lynetteholmen, which will hold 35,000 new homes – but they won't all be finished until 2070 (barring delays), and they aren't likely to be inexpensive.

Housing is an eternal problem, it seems. The population of Copenhagen hasn't grown that much over the last quarter century – only by about 80,000 people in the municipality itself and another 20,000 in the neighbouring municipalities that make up the City of Copenhagen. However, many old, small apartments have been joined into larger ones, and on the few occasions when old buildings have been torn down, the new buildings that replace them, though taller, have bigger (and more expensive) apartments, leading to little or no net growth in the number of apartments. Adding to the problem is the growing trend of people wanting to

JOBS & AUTOMATION IN 2044

In 2044, the ongoing implementation of AI and robot technology in the workplace has meant the automation of almost all routine tasks, both physical and cognitive. This is even true for very complicated work tasks in fields such as medicine, law and finance. Humans and machines supplement each other, each applying competencies where the other is weak. The majority of human labour takes place in fields such as science and research, technical (non-repetitive) physical labour, creative work requiring subjective and aesthetic judgement and jobs requiring a high degree of emotional intelligence and/or human interaction (social work, management, politics, religion).

An increasing number of people are left behind by the automation of the labour market since their competencies can be easily automated. Despite an increased focus on lifelong and lifewide learning (see HIGHER EDUCATION IN 2044 on page 18), the share of economically inactive citizens in Western Europe as a percentage of the working age population (15-64) has increased to 33% in 2044 (from 27% in 2017). Citizens on the labour market in Western Europe typically work 1200 hours a year, compared to 1500 in 2019, corresponding to 40 work weeks of 30 hours.

The past long-term trend (in 2019) is ca. 100 annual work hours less per decade, but work hours have plateaued the last two decades or so. Our 2044 scenario assumes that this long-term trend returns and even catches up a bit, due to breakthroughs in automation and a societal desire for more leisure time. The scenario also assumes that economic polarisation continues the next 25 years as it has the previous 50. *Sources for these numbers: Automation MR, McKinsey, Eurostat, OECD.*

Alternative trajectories: other possible scenarios for automation in 2044 are The Singularity, where all tasks (even within creative and social work) are better performed by machines than humans, and a Slow-Tech Scenario, where developments in AI and robotics run into unforeseen barriers and don't progress much beyond what has been demonstrated today (which is still plenty). In the Slow-Tech Scenario, machines will remain tools, and even predictable routine tasks have proven difficult to automate. Work hours remain at ca. 1500 per year, since new tasks are invented as fast as old tasks are automated. Instead of increasing polarisation, we could see a reverse and witness greater equality in wealth.

live alone, even if they are in long-term relationships. Neither of these issues are new, but they seem persistent over decades, and I don't foresee this changing anytime soon. It is the cost of greater affluence, I guess.

The high cost of housing is also a problem to the many residents who have lost their jobs to automation and haven't managed to retrain for new jobs due to the higher technical or creative qualifications required. A lot of them have been forced to relocate or have no permanent homes, basically living on the street or 'couch-surfing' at friends and relatives. I have undertaken measures that help some of these citizens move to municipalities outside Copenhagen, where housing is affordable on unemployment benefits. Some of my colleague mayors in neighbouring municipalities have agreed to find housing for some of them in return for Copenhagen paying the rent for the first three years. What happens to the people after that is not my problem. That may seem a bit harsh, but I must put my own citizens first.

AFTERNOON

My digital assistant informs me that my eldest daughter, Susanne, is calling. Our assistants have already aligned our schedules, so I accept the call. Susanne teaches architecture at the technical university in Lagos, and she has chosen to appear in a virtual representation of her latest concept architecture, which combines elements of traditional Hausa architecture with modern high-tech materials and 'smart' architecture, all in a green environment. Lagos, a megacity approaching a population of 40 million, is emerging as a centre for technical research and teaching and has attracted talent from all over the world, including Susanne.

Susanne mainly just wants to touch base as it has been a few weeks since we last talked. She is dressed in a traditional Hausa dress, and the bare midriff shows off her pregnancy. She is worried that her giving birth may coincide with her grandmother's birthday celebration, and she is considering using drugs to accelerate her pregnancy. She also asks if I'm currently seeing someone; she keeps pushing me to date more. 68 is not that old, she tells me – I might even be able to get another child if I really want to, with a little help from technology. I tell her that I have had a few dinner dates with a guy, which is true, but refrain to mention that he was a fellow politician and we mostly talked business. The truth is that I have gotten quite used to living alone and not having to show consideration to anyone but myself when I am not working.

Next on my agenda is going over suggestions for making Copenhagen more climate resilient in preparation for next month's meeting of the C40 Cities Climate Leader-

ship Group in Madrid. Copenhagen was named the most sustainable city in Europe in 2036 and 2040, a position I hope to reclaim next year. As Copenhagen is built on a low coast and several partly or wholly artificial islands, it is very vulnerable to rising sea levels and storm-driven flooding. The best solution seems to be flood gates at the north and south end of the long harbour area between central Copenhagen and the Christianshavn neighbourhood across the water, but this will severely restrict the passage of boats and ships in and out of the old harbour areas. On the plus side, the flood gates can generate green tidal energy.

Copenhagen also plans to co-finance, with Region Skåne in Sweden, a new offshore windmill park in the Sound. There are concerns about more heavy storms in the coming decades, which may require making new windmills sturdier and reinforcing older ones. This makes the project more expensive than originally thought, although it should have been factored in from the beginning since we've known about the effects of climate change for decades. I sigh. The money must be found somewhere, but I don't like raising taxes, so cuts must be made elsewhere – which I don't like, either. Perhaps we can delay the planned renovation of the city's public schools, though that is sorely needed. Maybe more parents will move their kids to private schools, and the problem will solve itself.

I decide to book tickets on the European network of high-speed railways. It sends a better signal, going to a green conference, and I get around paying the hefty environmental taxes on flying – no need to strain the municipality's budget more than necessary. The trip will take three to four hours longer each way than going by air (if I count waiting time in airports and that planes will not take me directly to the city centres), and working on a train is much more comfortable than working on a plane.

Next, I look at expenses for municipal employees' private health insurance. It comes to quite a lot, especially with the associated visits from lifestyle advisors. However, it results in fewer sick days, and given the often very long wait times for treatment in the public healthcare system, the savings on temps more than make up for the extra cost. I have chosen to accept a discount in return for giving the private vendor access to all the health data we collect on our employees — with their permission — through their wearables. The vendor uses this data to provide early warnings when there are signs that an employee is at risk from some disorder or disease, ranging from stress and influenza to cancer and cardiac issues. This allows early intervention, which is better for the patient, not to mention municipal finances. Such use of data has become common in both private and public health-

HEALTH IN 2044

In 2044, the focus of healthcare has shifted from late treatment to early prevention. In 2030, the Nordic countries came to the agreement that they would devote half of their health budget to prevention and half to treatment by 2040. Decision-making is increasingly based on health data. In many cases, this allows for intervention before symptoms are detected. Consequently, a measurable reduction in disease burden and an improved quality of life have been achieved.

The 2020s saw the entry of tech players in the healthcare sector. This was initially viewed with scepticism, as the interests of the healthcare system (public good) and the interests of tech players (profit) were at odds with one another. Over time, however, the distinction between public and private was overshadowed by changing priorities. Citizens and healthcare personnel demanded efficiency and results, irrespective of the governance structure, and the 2030s saw an increase in public-private partnerships.

In 2044, health providers have access to data due to global agreement on standards and requirements for interoperability across both public and private sectors. This development was inspired by the International Telecommunication Union (ITU), which ensures maintenance of the infrastructure and continued updates and improvement of standards and protocols. A distributed ledger-enabled technology has supported transparency and traceability, including the right of individuals to decide the use of their data in different settings (a concept referred to as 'self-sovereign identity'). Data is no longer divided between research, clinic and lifestyle, but assembled as 'the Humanome', which draws upon the person's biological data, microbiome and the exposome, and links it to their digital phenotype, called the 'digital phenome'.

Alternative trajectories: other possible scenarios for health in 2044 include a health system plagued by an onset of challenges: ageing population, rising prevalence of chronic conditions and complex patients with multiple comorbidities, resulting in an increase in inefficient healthcare spending and a healthcare system grappling to overcome these challenges. As a result, citizens who feel like the system has failed them turn to private players for healthcare solutions. Tech players have been successful at integrating data with health and are able to provide integrated healthcare solutions, but such solutions come at a high monetary costs for individuals.

care. Each citizen oversees and decides what their data is used for, but most allow wide access to their health data in exchange for health benefits or discounts on health services.

Towards the end of the workday, I feel rather tired. I reflect that when my parents were my age, they had both retired from the labour market, living off their private and public pensions. I have three more years until my official retirement, but I will likely keep working part time after that. It helps that weekly work hours have been reduced, which means that I can take a day off every week… though I must admit that I often use my days 'off' on work-related things like reading relevant books or research reports and making public appearances. In truth, working hours seem to have become a suggestion rather than fact for most people, and few workplaces count hours anymore. The outcome of those work hours is what matters.

EVENING

It is nearly six in the evening before I finish up and head home. After locking my office with my thumbprint, I ask my assistant to send a car to pick me up, and when I reach the side entrance, it is waiting for me. I am asked if I will wait for a civil servant who is also leaving and is going in the same direction; I decide, why not? After all, it has stopped raining, and I enjoy the fresh, cool air for a few minutes instead of waiting in the car. The civil servant turns out to be a young man I don't know, and as we talk, he tells me that he just started the week before. He seems like a nice, young man, if a bit shy about sharing a car with the Lord Mayor. I feel obliged to ask about his background and dreams, but I must confess that I don't really listen to his answers. He gets off just after we exit the tunnel, and as the car gets going again, I order a pizza from a vendor that makes high-fibre pizza and uses good quality vat-grown meat.

I look out the window at my town as we roll on. Here, away from the central parts of the city, nearly half the cars still run on petrol or gas, and most have people behind the wheels, lacking full self-driving capacity. I am reminded that change doesn't happen in a day, or even a decade, and at any rate, we simply can't provide enough green electricity to fuel all the cars in the country. We still depend on fossil fuels and will likely continue to do so for decades to come. At least the cars are more fuel-efficient than a quarter century ago, with better engines and lighter frames, and the fossil fuel is mixed with at least 20% biofuel.

As I get out of the car at home, I see the pizza delivery van roll up to the pavement. Perfect timing. My pizza was made by a machine in the van as it drove, and it is

fresh and warm. Printed on the cardboard box is a breakdown of the environmental footprint of the pizza, from producing the raw materials to baking and delivering the pizza. It is a nice gesture, but I rarely take the time to go through it, and at any rate, I wouldn't be able to tell if the breakdown is fair and accurate.

My house is nice and warm as I enter. The heater has been turned off most of the day while I was away but turned on automatically as my digital assistant told my house that I was coming home. I hand the pizza box to Mr. Roboto, who is waiting, and kick off my shoes, hang up my coat and take my prosthetic hand off and put it into a glass of disinfectant. I rub my stump. It can get itchy after wearing the prosthetic a whole day.

When I enter the living room, the pizza is waiting on a dinner plate with a glass of foamy beer next to it. The smell reminds me how hungry I am, and I start eating as soon as I sit down. I like food that I can eat with only one hand. After the first slice has taken the edge off my hunger, I tell my AI that I would like to see the news on the glass door to the terrace and select political and environmental news. Like all the other windows in my house, it turned opaque as it got dark – no need for drapes anymore – and it doubles as a wall screen. I remember back when TV sets took up half of a wall; now I can use the walls for art and bookshelves instead. Yes, I am old-fashioned and still like to read books on paper. Why should I throw out hundreds of perfectly good books and buy them again digitally? I can still get most of the new books I want as print on demand – another small luxury I allow myself.

The news tells of a false story that has circulated about African climate refugees burning a church, followed by a firebombing of an asylum centre. Two refugees were killed: a young man and a child he had run into the fire to rescue. When the perpetrators were caught and confronted with the fact that the church story was false, they insisted that it was true, but that the authorities wanted to cover it up, and that the asylum centre was a secret terrorist base. No amount of evidence to the contrary could change their minds, and they referred to having seen a surveillance video showing the burning of the church. This video, however, was a convincing fake, the police experts say – but who can tell anymore what is real and what is not? For all I know, the story of the firebombing may be the false one, though I doubt it.

I long for the day when you could trust your eyes and ears and most news services. I heartily support that children are now taught critical thinking and media literacy

MEDIA TECHNOLOGY & MISINFORMATION IN 2044

Fake news and doctored images and video have become a common feature of the media landscape. There is an arms race going on between misinformation and fact-checking, but fact-checking and other reactive efforts are ultimately like playing catch-up, and the proliferation and democratisation of software for media manipulation have made fostering media literacy a priority for governments and the education system.

Mixed reality has become common, and consumer-grade light weight goggles with depth resolution are very low lag and low cost. AR contact lenses are used by some first movers. There is a generation gap in terms of who have embraced the technology fully, with older generations still preferring screen-based platforms.

Windows in modern homes and cars can be turned into non-transparent or semi-transparent screens, partly or wholly replacing 'true' reality with the reality of your choice. The prediction from the 2010's that the autonomous vehicle would become the primary 'entertainment centre' is, however, only partly true, as many use their daily commute to/from their job to either work or get some much-needed sleep. This is especially true seeing as how an increasing number of people working in urban areas are moving further outside the city due to the ease of transportation that autonomous vehicles make possible.

Alternative trajectories: Fake news and misinformation may turn out to be a very '2010's' problem connected to our present political, societal and technological reality. However, judging from the current uncertainty that exists among experts (see Members' Report *Future Media*, it is likely that we will be wrestling with these issues for years to come.

When it comes to media technology, it is possible, although unlikely, that we are currently (in 2019) at the peak of computer power – that is, if we don't manage to find a good replacement for silicon chips.

in school from an early age, but it may be too late for people who have already graduated, and even with critical thinking, it can be difficult to tell what is true and what is false.

Next on the news is the opening of a new arctic shipping route between Asia and Europe, made possible by receding ice. It will greatly reduce shipping distance, which reduces fuel usage as well as time to customers, but protestors warn that an accident with one of the Russian nuclear-powered ships serving the route could severely impact the vulnerable arctic biosphere.

Just as I have seen all the news I can take, my assistant informs me that a mobile fashion outlet is visiting my neighbourhood. It has a sale on evening gowns, including a brand I quite like. I change the setting of my windows to transparent to check if it is raining, and I am treated to the sight of a full moon shining through thin clouds – nice weather for a short walk. The mobile shop is parked two blocks away. I speak to the young woman running the shop, and she suggests I look at a new, colour-changing smart fabric. I try on several designs for gowns in the virtual-reality mirror that matches the cut of the gowns to my measures, which my assistant provides. I end up buying one that can be set to change colour schemes to match – or stand out from – my surroundings or cycle through several schemes during a night. It is cut and sewn to measure by a robot while I wait. As I pay, I am aware that my purchase is registered and shared; but that is only for the good, since it will make it more likely that mobile shops catering to my tastes will come by in the future.

I run into an acquaintance from my neighbourhood walking his dog. We talk as we stroll along the quiet streets. His company launched a new product today: an app that works across devices and helps the user select meals based on factors like climate, nutrition and individual genetics. It sounds like something I could use. When I get home, I once again set my glass door to screen mode and watch an old science fiction movie that was first shown in Danish theatres in 1969. It has quite impressive special effects for its age, though the pacing is slow. It takes place in 2001 and has a space wheel, a large moon base and astronauts in orbit around Jupiter. We haven't achieved any of that today, 43 years later, which again shows that change takes time. That is paradoxically both comforting and discouraging, I guess. When the movie is over, I briefly set the glass door to transparent, and I'm not surprised to see that it has started to rain again.

I go to bed and dream of spring.

PART 3

THE BUSINESS LEADER 2044

AGE: 48
SEX: MALE
OCCUPATION: DIRECTOR


YUM

MORNING

I wake up to the smell of coffee, not from the kitchen, but from the scented alarm clock I got for Christmas last year from my wife. They've been around for a while, but I never really got around to getting one, and frankly, it's not like the sound of my former, traditional alarms have ruined my day for the last half century. In any event, I reluctantly admit that the smell of coffee is a nice way to wake up, especially knowing that when I step into the shower a few minutes later, my home-control-AI will know to start brewing the actual coffee downstairs. I still struggle a little to find the balance between technology and my own efforts. For instance, my wife and I still cook for ourselves, despite the availability of a kitchen robot to prepare basic meals. The reduction of the formal workweek to only 30 hours was a welcome change back in the late 2020's, especially as it coincided with a general shift in focus from counting hours to a focus on outcome. The increased option of tele-presence was also a welcome change as the new generation of colleagues had a very limited desire to walk into an office every day and sit at a desk. But with time, and the adoption of all the new technology to alleviate the daily domestic and repetitive professional tasks, people seem to miss actually doing and creating some-

TIME PERCEPTION: ADAPTOR

CIFS has developed a framework for analysing how individuals perceive and engage with the future: *time perception*. The framework contains a set of segments that individuals fit into based on their attitudes towards societal and cultural change, technology, work, consumption and more.

The business leader most resembles an 'adaptor' but he also has some traits of the 'creator'. The two segments are past-oriented and future-oriented, respectively. When it comes to the adoption of new technology and consumption habits, the business leader displays a moderately positive but reactive mindset – typical of adaptors. Although he is not completely averse to change, he prefers to stick to his old ways for the most part. In his work-life, he more resembles a 'creator', in that he works in the field of developing and pioneering new technology.

In 2014, when CIFS last performed the nation-wide time perception survey in Denmark, 15 % of Danes were adaptors.

thing tangible. So yes, we cook, albeit from groceries delivered by the store and often from recipes proposed by one of our digital assistants, who know our tastes and average dietary needs based on our key health metrics. But who am I to complain, I helped invent some of that stuff.

Today is one of the days I will actually go to the office, so I get dressed and head for the car. We have a subscription with the local shared car service, basically a monthly amount is charged based on our average use the last three months, allowing and ensuring access to a vehicle at the exact time and place when we need it. These days there is a hub no more than 500 metres from any larger residential area. I know many people ride the autonomous cars (AVs) now, but I don't work in the city where only AVs are allowed, and frankly I never grew accustomed to fully letting go of control. It's silly, I know, as we let go many decades ago to metro systems, airplane autopilots and the like, but still, I find it uncomfortable. My car is, however, electric and equipped with the latest AI technology and is part of the greater network of cars available for sharing. This means that when I turn on the engine by breathing into the small tube which checks for alcohol on my breath, the system asks if I am willing to take a passenger with me, heading the same way. It provides me with key characteristics of the person and their co-riding rating.

I decide to pick up a man a few blocks from my house. Not only will it provide some company on my one-hour ride, it will also allow me to use the faster co-riding lanes and add climate credits to my monthly balance. The climate credit system was introduced globally following the COP 37 meeting in Kinshasa back in 2033. It was probably the first time a global quantitative system was actually agreed upon and implemented. It's a start, although the enforcement is lagging in many countries.

Ironically, forcing through the climate-credit initiative took the Chinese government threatening with supply control on rare earths, which remain a key electronics component, and with rolling back the 5G network which was ultimately installed in Europe during the 2020s becoming the blood vessel of most existing infrastructure. The reason I find it ironic is that we spent the first two decades of the new century in some sort of East-West/North-South face-off on the climate issue, with the former industrial countries insisting they would lead the way, all the while maintaining the highest per capita emissions on the globe. In the meantime, climate change impact has been felt much faster and harder in the so-called emerging countries, which ultimately leapfrogged in technology adoption, introduction of smart cities and infrastructure and proved more flexible in adopting new foods and livelihoods in the face of the challenge.

CLIMATE AND ENERGY IN 2044

Renewable energy has become mainstream, mainly because the cost of wind and solar has become competitive with fossil fuels. Globally, renewables account for 20% of total energy production (4% in 2018), with hydro accounting for another 9% (7% in 2018), while nuclear power remains at 4% as in 2018. The fossil-fuel share has thus declined from 85% in 2018 to 67% in 2044.

China has taken leadership in climate technology, including solar, wind, and battery technology. With no demand from stockholders to produce quick, short-term profits, China can play the long game. Climate technology has grown into a major export success for China. The Chinese invest heavily in Africa, offering climate and energy technology in exchange for resources.

Climate emissions from farming are still a major challenge. Measures taken to reduce the climate footprint are offset by the growing world population and demand for food. Global agricultural actors are, however, taking a greater role in reducing carbon emissions through a split-cost business model between corporate actors and individual farmers. To preserve rainforests, international NGOs buy up land in the tropics, often leading to conflicts with local farmers seeking to expand their farms. (*Source for 2018 numbers: BP Energy Outlook 2019, 'Evolving Transition' scenario).*

Alternative trajectories: In a *more positive* scenario, adequate climate measures were taken already in the early 2020s, making climate change less severe, but still felt in 2044. Renewables account for 30% in 2044, while nuclear power accounts for 7% and hydro for 10%. Fossil fuels, hence, account for 53% of energy production. These estimates follow the 'Rapid Transition Scenario' in BP's *Energy Outlook 2019*. Climate technology is high on the agenda, and climate emissions from farming have been much reduced. This has also ensured that there is no lack of food globally. In a *more negative* scenario, short-sightedness prevents adequate climate measures from ever being implemented, making destruction of crops, farmland, and infrastructure a major, ongoing problem in 2044. Strong global competition prevents any talk of global measures, and few local measures are made due to the fear of loss of competitiveness. Low costs of fossil fuels due to new extraction methods have reduced the competitiveness of renewables. Fossil fuels still account for 75% of global power, which means that far more fossil fuel is burned in 2044 than in 2019 (following BP's 'More Energy' Scenario).

It took us a bit by surprise – by 'us' I mean the developed world (the irony of the term itself is striking) – not least because being overtaken is never very pleasant, so we kept telling ourselves and each other we had a much stronger lead. But being in the business of nutrition and foods, the development has proven a great growth opportunity, especially in Africa who had to feed a growing population with limited farmland and water availability. The development also provided a chance to work with some of the best scientists in Asia, who had far more mouths to feed and wanted to avoid our mistakes of obesity and associated increasing health consequences and costs. The antibiotic saturation and the aftermath of the resistant bacteria outbreak in the mid-2030s only further propelled the policies and R&D focus on future food supplies and new ways of providing the necessary proteins to a growing population.

I drop off my passenger five minutes from the office. There is a research facility with which my company collaborates. During the conversation in the car, I found out he is working in one of the recently established LABs which attract some of the best talent, not only from Denmark, but from most of Europe and even globally.

I take some pride in having been part of the scientific breakthroughs in artificial animal protein and enzyme research back when we originally started working on it in the 2020s. At first, people resisted DNA technology being applied to foods, but we neglect that the fruit and vegetables we eat stem from selective breeding over thousands of years and have often mutated beyond recognition from the original ancestor crop. Carrots were not always orange – they were scrawny and white; peaches resembled cherries and were salty; watermelons were small, hard and bitter; aubergines used to look like white eggs, perhaps hence the 'eggplant' name.

As I approach the office, I pass by one of the fast-charging stations, one of those where you simply cruise over a battery strip on the road while your car charges. We had it installed a few years ago, as the economy of scale was clearly there when our science park became a showcase of industrial symbiosis (IS) across several sectors and we installed our own windmills and mandatory solar roofs.

I enter the building and find that quite a lot of people are in today. The availability of autonomous vehicles has increased people's willingness to be at the office, as the commutes are spent doing whatever people desire, making them less of a nuisance. Working from 'third places' outside the home and the office, and working while on the move, has also become much more common and accepted. The office remains a valuable meeting place for sparring with co-workers or colleagues from other companies. I assume the high turnout today also has something to do with the

COMMUNICATIONS TECHNOLOGY IN 2044

The main communications platforms of 2044 are still screen-based, but the hardware has changed significantly, most noticeably with thin bendable and roll-able screens allowing for easier transport and storage. Brain-to-computer interfaces exist, though consumer-grade versions of the technology are on a rudimentary stage. Individuals can access online services powered by very powerful AI.

5G mobile connections are standard, though 4G is still common, especially outside urban centres. No 6G networks are planned due to the poor range such networks would have.

The Internet of Things encompasses hundreds of billions of sensor-equipped devices, including personal electronics, household electronics and infrastructure devices such as road signs, traffic lights, cars, weather stations, sewer sensors and more. In combination, they collect billions of gigabytes worth of data every second that can be analysed by AI for all sorts of purposes. Most companies – from the smallest coffee shops to the biggest multinationals – have a data strategy in place that defines what kind of data they capture and what they share with/sell to other companies.

Increased machine-to-machine data sharing has also come with the possibility for the exploitation of data for criminal use, resulting in an arms race between security devices and hacking devices.

Alternative trajectories: It may be that 5G never really takes off or that some unforeseen innovation will allow much faster wireless connection with good range. It is also possible that brain-to-computer interfaces will only find very specialised applications among professionals and scientists. When it comes to IoT, we may see that it turns out to be mostly hype and that the generated data provides very little useful information. Finally, it may be that we today (in 2019) are approaching the limit for how much useful information we can get out of data. Diminishing returns and false positives/negatives make more data effectively useless.

product we're launching. We pioneered industrialising the personalised nutrition technology in the late 2020s, following decades of various studies revealing that people's bodies respond differently to the same foods. The overweight epidemic observed at the turn of the century, when worldwide obesity had nearly tripled since 1975, started making its way into productivity losses and increased health spending, which provided our research with the public and political tailwind we needed. Additionally, the Sustainable Development Goals (SDG) launched in 2015 to be reached by 2030, offered visibility and focus to the many conflicting or competing goals we had to achieve to sustain ourselves as a species and preserve Earth as our home. Among other things, we had to eradicate hunger, ensure economic growth and provide equality all the while preserving our planet, together with its climate and biodiversity. It was no longer an option to pursue economic growth while increasing pollution, nor to continue to overeat in one part of the world, starve in another and feed everyone by cutting down more forest to make room for agriculture and livestock. The way we produced and consumed food took a toll on the environment and natural resource base. For example, at its peak, food production accounted for the use of 48% and 70% of land and fresh water resources respectively at the global level. And with a projected increase in population to 9.7bn. by 2050, coupled with changing diets as more and more people moved into the middle class, the strain on our food systems was only going to get worse.

Denmark was one of the frontrunners in applying precision farming and AI to significantly increase efficiency, reduce water and fertiliser use as well as increase agricultural yields. When the salmonella crisis in 2029 killed a large part of the world's chickens, the West finally woke up to the potential harboured in genetic technologies, such as CRISPR, to solve some of these bigger problems of our planetary boundaries and allowed for increased private research and opening up for commercialisation of the technology. Today, with the help of such technologies, as well as improvements in transport and storage and a shift in consumer behaviour, we have significantly reduced food waste, which was at a staggering 30% back in the early 2020s.

Meat and poultry remain available, but consumption has shifted noticeably away from animal proteins and towards plant-based diets, with multiple global brands offering substitutes that make it a small sacrifice of former eating habits. People are people after all, and bacon-appetites eat climate intentions for breakfast. The antibiotic resistant outbreak a dozen years ago, which took many lives and was quite a scare, was also a stark reminder that our excessive use of drugs in livestock is making its way into our bodies and disarming modern medicine.

Today, we are proudly launching our YUM product. It is a culmination and combination of everything we've worked on for decades. It's the most powerful software of its kind on the market, but all the user sees is an easy-to-use interface on any device of choice which allows him or her to select their meal based on a set of options. Behind it is a significant amount of data analytics on DNA tests, as well as nutrition and health data matched against our latest technology of personalising flavours and removing allergens by using CRISPR. We cannot make it a day-to-day selection yet, but we can make a menu a week in advance based on last week's average data results and sourced from one of our many local vertical farms. It even has the option of finding an optimal meal for an entire family by combining their data. Of course, it comes with the carbon footprint calculator, which includes any transport and handling emissions that were involved. If at first the collection and harmonisation of health data seemed overwhelming and legally near impossible, it is now the backbone of modern healthcare and now, YUM.

After catching up on my to-dos, I have a meeting with the other directors. We are a funny group of literally all ages and backgrounds. Since the labour reforms, people stay on the labour market longer allowing companies like ours to tap into their knowledge and expertise for a much longer time. I have a colleague on the leadership team who is turning 83 in a month – brilliant woman. The change has also offered some support in alleviating the growing loneliness crises of the 2020-30s. which came about from the automation wave and a growing number of people living as singles. At the other end of the spectrum, we have embraced the new ways of working and the entrepreneurial spirit of the latest generation to join the labour market, which is why we have a leadership team seat reserved for an entrepreneur for a two-year tenure at a time. These colleagues are rarely older than 30, which in previous times, would be unheard of for a leadership team position in a company the size of ours. I have noticed that the last two of our entrepreneurial directors have been young women. The parental leave laws have really had an impact on how women re-enter the labour market, and the flexibility of telepresence surely allows us to recruit much wider geographically as well.

After completing my morning agenda, I tell my assistant that I will drop by the office gym and return in two hours to take part in the teleconference hearing in the Chinese Belt and Road Court of Trade.

AFTERNOON

The product we are launching today is a result of an intensive collaboration with a Chinese partner and their researchers. All the while our joint work on the actual

WORKLIFE AND WORKFORCE IN 2044

In 2044, there is a fluidity between the end of most people's work-life and retirement, and few people go from a full working week to 0 hours a week anymore. This became possible after employers began accepting (and unions began offering) extreme flexibility, lifelong learning and other kinds of work aid. 'The Right to Part Time Pension' became a political slogan for the centre-right party, Venstre, in the 2028 elections.

The inclusion of the elderly helped alleviate the costs associated with an ageing society. However, with the increase in polarisation happening as a consequence of automation (see JOBS & AUTOMATION IN 2044 on page 28), the inclusion of the elderly in the workforce has become a politically debated issue – with some believing that it is contributing to 'squeezing out' others from the labour market, especially the young generations.

The third sector is booming and is included in work and service ecosystems. The 70+ year-olds that do not wish to work anymore are utilising their skills as volunteers. Private-Public-Partnerships (PPPs) are, in 2044, often referred to as Private, Volunteers and Public Partnerships (PVPP).

Labour unions have managed to adapt to a more demanding workforce and have even managed to include the many people working part time or full time in the gig economy and secure most people on the labour market some kind of basic rights. The agreements now reflect a need for more flexible ways of working and flexible contracts. Overall, the increased focus on flexibility and attention to individual workers' needs have helped lower stress levels among employees in many companies – something that was sorely needed following the so-called 'workplace stress pandemic' of the 2020s.

Alternative trajectories: In an alternative scenario, automation has meant that young people find it difficult to find employment. As a result, there is a drive to have older people retire earlier to make room for the young, who otherwise might become a 'lost generation'. The state offers decent early retirement benefits to people above 60. This pays off since the benefits are less costly than paying unemployment benefits and activation measures for young people. Companies that hire young people are paid a reward once a young employee has been employed for three years.

product was going smoothly, tension started rising as we approached an actual launch. The biggest issue seems to be that Russia refuses to approve it for use, which has taken us by surprise. The choice of a Chinese collaborator was not solely based on their scientific merits, it was also to ensure that we had a seamless introduction of the product in both the Eastern Trade Organization and in the Trans-Atlantic partnership of the EU and the US (TTIP.2).

As I sit down by my desk, my assistant reminds me which health data from my workout are being shared and with whom. The latest health reforms and progress on data gathering (primarily through silicone chip implants and wearables), protection and sharing, have made it mandatory to share some of the key indicators with the health authorities. But I don't mind. The increased life expectancy, the improved quality of life and the reduction in health spending are all a result of the progressive shift that took place, taking us from treatment to prevention, allowing for early intervention and personalised health care. Self-Sovereign Identity (see HEALTH IN 2044 on page 31) allows me to easily select what goes where, including my nutrition and vitamin data, which my assistant sends to my kitchen for analysis and suggestions of dinner options for tonight.

For a long time, I resisted the many sensors and connected devices that were suddenly everywhere – it was overwhelming and unnerving. I just wanted to be left alone and have my privacy. I still insist on wearing my retro Garmin Phoenix 3 watch, partly nostalgia and sentimental value, partly for maintaining my illusion of a futile resistance to technological progress. But when deepfake really made its entrance and no one could tell fake from real, real time data gathering from sensors became the only way to prove where you were and when, so I caved and started wearing the sensors. In general, it is exhausting to never know what and who you can trust for information; I miss the good old days of public broadcasting being the ultimate gatekeepers of facts. But there is hopefully good news (no pun intended) on the way. The very same public broadcasters who lost their viewers and relevance to the Netflixes and HBOs of the 2020s have launched an initiative aimed at fact-checking, news verification and fostering media literacy for the general public, the 'TrustUs'. I, for one, genuinely hope it will become law, just as carbon footprint reporting became mandatory for all consumer products.

My assistant pulls up all the relevant documents on my smart wall; this means that the Eastern Trade Organisation hearing will start in 15 minutes. I hurry up and scroll through my notes and activate the real time TranslAid, as the court session will be in Chinese. It's amazing how fast it works – it's as if the original communi-

GEO-POLITICS AND TRADE IN 2044

The world in 2044 is geopolitically and economically polarised between East and West but in a state of collaborative trade-based equilibrium. The Eastern Trade Organization (ETO) was established by China, India and Russia in 2032 as a response to the very slow adaptation of the existing Bretton Woods institutions, such as the WTO, World Bank and IMF, to encompass the changes taking place in the economic and geopolitical landscape. For the last decade, the Chinese Yuan has served as the second international reserve currency.

After the turn of the century, the Asian economies continued to grow substantially, taking turf from the former big players such as the US and Europe. But changing the existing distribution of power in the UN and its bodies, which were introduced after WWII, proved to be moving too slowly. Ultimately, China took matters into its own hands and established its own institutions with jurisdiction in most of the Belt and Road countries. Following long negotiations with Russia, the Eastern Trade Organization (ETO) was established as a formal counterweight to the WTO. Despite many disagreements, Russia ultimately saw the benefits of having a strong ally (and neighbour) in the wake of its own economic decline and increased diplomatic distance to the West. Meanwhile, China appreciated the sheer size and Eurasian nature of Russia's territory, as well as it being a way for China to get some stake in the Arctic.

Realising the slippery slope towards a truly divided world, the UN is now working on a revitalised global governance system in 2050, which will more fairly reflect the power balance of the globe in the mid-21st century and encompass the ETO as well as some of the financial institutions which came about in a similar manner during the early-2030s.

Alternative trajectories: China's economy may slow down or even collapse due to a combination of demographic stress, corruption and reduced outsourcing due to automation. This could lead to the West remaining the nexus for global economy, while China increasingly turns inward and Russia aligns more with MENA. Western investors look more to Africa as an alternative to Asian investments. Alternatively, the major Western economies may choose protectionism over trade, relying on heavily automated local production of goods and closing their borders to immigrants. China and other Asian countries take the lead in global trade, with a major Asian-African trade agreement moving most trade south.

cation is actually in Danish as there is only an almost unnoticeable delay in my audio. I never cared much for legal disputes, though. Besides, the company AI lawyer is taking down everything being said and will be preparing our response accordingly. Sometimes it is hard to believe the amount of time and money we used to spend on legal help with the big law firms when I was younger. The AI lawyers are faster, more accurate and can work with the lights off and during Christmas dinner.

The session ends and my iris is scanned for approval of participation on our end. I still don't know if Russia will adhere to the approval agreement and acknowledge the product as part of the greater Eastern Trade Organisation ratification, but we'll know soon enough. The good thing is that regardless of the outcome, our risk exposure is limited as the investments were made in Chinese Yuan, the world's second reserve currency.

I head down to the common area from where we will push the symbolic button on the new product. The actual button will be pushed somewhere on a server. But, we will have a hologram of our Chinese partners with us at our premises, and vice versa, when we count down to go live. Everyone who is in the office today seems to be in the common area already. We have worked very hard on this for the last three years, so everyone is understandably proud of what we have created. More than anything, we genuinely believe it will offer some support in achieving the Sustainable Development Goals of feeding the globe, preserving the environment and improving human health.

After the launch, we celebrate, but I stick to the non-alcoholic beverages, otherwise my car simply will not start, and I prefer to drive myself home and pick up my wife on the way. The non-alcoholic options are so compelling these days, that it is rarely even an issue to deselect alcohol.

EVENING

We get home at roughly six o'clock. The groceries have been delivered based on the menu we chose earlier. The assistant offered a selection of dishes that would suit our average nutritional needs (something YUM will make far more personalised in the future) and ordered the ingredients delivered. As mentioned, we prefer to cook ourselves. It provides us with some quality time in the evenings and a feeling of still creating something tangible in the very digital world we now live in. Sometimes we forget about the assistant and data analytics altogether and just shop for what we feel like cooking for the entire household.

My wife and I are each other's second marriage, and although the entire idea of marriage seems to be undergoing scrutiny for relevance, we are old-fashioned and saw something romantic in saying 'yes' to one another at an age where we both knew what it meant and how to cherish it. Very quickly we decided that combining our families, having more time with the children and grandchildren was something we really wanted to do, so eight years ago, we bought a big house with room for three generations. My son and his girlfriend had just had their first child, my granddaughter, and had moved into the newly established co-lives in the city, as the surging loneliness and following need for a community paved the way for new types of commercial communal living to be erected. Recently, my stepdaughter and her family too decided to join us in our little intergenerational experiment, albeit this form of living is becoming more and more common. So now, the house consists of three distinctly separate apartments with a common living and dining room for when we feel like all being together. The grandchildren share a playground in the garden and the parents make use of the private yoga and fitness instructor who comes around every weekend. My wife and I enjoy having our privacy yet having our loved ones close.

After dinner, I take my stepdaughter's dog for a walk. It's more like a household dog really; everyone loves to play with him, and I often walk him in the evenings, either alone or with one of my grandchildren. Today, one of them has a cold and the other didn't feel like going after a long football practice in the rain. Funny how times change, but kids' dreams don't. He dreams of being on the national team and going on to secure another great championship for Denmark, so we can add another prominent victory to the 1992 European trophy and the 2030 World Cup, which Denmark won against all odds, as usual.

On our way, Brexit and I (the kids named the dog after I told them of Brexit as something that lasted much longer than expected) run into a familiar face from down the street. She is the Lord Mayor of Copenhagen. I like running into her and we talk briefly about our days. I usually strike up a conversation when I see her, partly because I know she lives by herself since her husband died and I feel sad thinking about her being alone, but also because we live in interesting times, and running a capital city is no easy business, so she is great conversation. One thing she will never convince me of, though, is the autonomous vehicles.

When Brexit and I get home, I head straight for bed. It's been a long day. Tomorrow is Friday, and I am not working, so I set the alarm to wake me up with the scent of pancakes. I hope my wife will take the hint.

CONCLUSION

SEE YOU IN 25 YEARS

The three presented storylines unfold in just one combination among the many alternative trajectories that branch out from current trends and their development paths. The daily lives and challenges the three characters encounter depict how even that one combination, one future world, will have different impacts on different people. Workplace automation, innovation in communications technology, in mobility and shifting social norms will mean something different to each of us.

The report's fictional narratives have veered off the path we usually take with our members' publications. However, it has not just been an exercise in storytelling. Underlying the narratives are an extensive set of assumptions about what the world of 2044 might look like, defined by the futurists at CIFS and based on the Institute's key research topics (which you can read more about here: www.cifs.dk/topics). If our assumptions had been different, our storylines would be as well, and our 2044 scenario is just one among multiple possible futures. The Young Mother's lifestyle would not be the same in a future where parental leave had not been extended to three years and where the concept of mandatory social service did not exist. If autonomous vehicles never become mainstream, or if they become mainstream much later than 2044, urban mobility and living patterns would be different. If personalised medicine, changes in the labor market or the trajectory of geo-politics follow different paths, the Business Leader's life could too be very different. The Lord Mayor's concerns about housing in Copenhagen are based on a series of assumptions about demographic trends that also may play out differently.

25 years can seem like a very long time and yet unfold in the blink of an eye. Some things stay the same; other things change in wildly unpredictable ways. Looking 25 years ahead, which development paths will align with our assumptions of 2044, and which will not? We will have to wait and see. We hope that in the meantime, this publication will provide food for thought and will have challenged at least some of the reader's current assumptions and preconceptions about the future.

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