

Planck Technology Funds

(global economic sector disruption)ⁿ

Planck.

Disruption

Disruption is according to Wikipedia: 'an interruption to the regular flow or sequence of something'. Changing some of the existing global economic sectors completely: that's what we do. We search, find, adjust and realize profitable disruptors. If there's no expected paradigmatic change by it we don't do it. We don't do 'me/us too' business models. After the technology enters a sector the whole sector should be changed in a completely different model than it is now.

Both new technologies as new modelling/channelling are our tools. By the disruption caused by those two we mould economic sectors to new realities and realize attractive returns in doing that. We work by the blue ocean strategy. This strategy can be described in a nutshell as short as: going there where there're no to almost none competitors yet. See en.wikipedia.org/wiki/Blue_Ocean_Strategy ('how to create uncontested market space and make the competition irrelevant'). Plus we don't burn marketing budgets, as burning capital is a capital sin. We connect to and/or service third party large customer bases, plus we use where possible social media (customer gets customer). We are Planck Technology Funds and we realize new directions. Profitable.

Just scan the headers and read only those sections that appeal to you. Have a nice peek preview into what will hit the market in the next years. Assemble a collection of your choice of economic sector disruptors into your own basket with the most profitable disruption portfolio according to your own assessment.

The native soil of all the economic sector disruption models you'll find on the next pages is the Planck Foundation, founded by Gijs Graafland in 1999 in Amsterdam (planck.org and planck.org/testimonials). As the objective of Planck Foundation was and still is Interdisciplinary Science Integration (in other words: technology and models) for achieving Global Sustainable Prosperity for all of mankind in the 21st century and beyond, Planck Foundation got a mega input of new technologies from all around the globe which we could select the best from. That led to the start of Planck Technologies CV which is the birth realm of Planck Technology Funds.

Telco Consolidation

In most nations there are 2 dominant telecom operators and a whole bunch of players that we call the third market column in our assessments. These third market column operators barely are making any money (burning all their profits directly in marketing). Consolidation of these third market column in one market player is wise for several reasons: besides obvious cost reductions, all this mainly 1play operators can deliver their customer base than instant 4play (or 5play if we add banking/payment services too). In plain English: the MVO (mobile virtual operators) can deliver their customer base suddenly also voice home, internet home and television home (and mobile) and the internet based operators can offer their customers bases suddenly also mobile subscriptions. In both cases ARPU (average revenue per user) will rise significant and profits ditto. This is why 'third column telco consolidation' is very good business: everybody wins. The losers are the two main/dominant market players in the telecom market with their too high cost structures and their huge investments (based on not longer existing ARPU growth and customer growth for them). Own offline advertising is wasting money (so we leave that for the old telco dinosaurs to do). Trojaning the volumes of third parties (banks, media, retailchains, etc) is the path to profit. Then an ARPU of \$ 300 a year can be created and divided between the digital model operator (us) and the third party that delivers it's customer bases to exploit this new revenue flow. Besides this: we have a splendid only online advertising technology that reduces the cost of acquiring a new customer to only \$ 30 (market average is north of \$ 300 per new subscriber). General advertising on tv, radio and print is for the old dinos: let them take the bill of that and suffer by doing it. And yes we will roll-out new services/products to this customer bases, starting with car subscriptions.

Telecom JVs

The telcos of the Global West are in dire straits: revenues are declining harder than their cost and these both developments are accelerating. Provider independent OTT services (like Netflix and Whatsapp) eat out their 4play business models. They need both to cut cost dramatically and to connect to new revenue flows. Two things they aren't that good at all. They are financed based on old revenue flows (higher ARPU of the past and growth in customer base of the past). They are doomed. The former national operators will be nationalized again. We don't buy telcos, we establish JVs with them. This way we have the pleasure of the new revenues without the old burdens/debts/organization attached to it. In these JVs we do: 1) internet data exchanges, 2) internet data centers, 3) urban/national e-band based internet connectivity, 4) urban/national LoRa IoT internet connectivity, 5) satellite TV packages, 6) IP-TV packages (via both OTT and E-Band), 7) mobile internet based payment services and 8) car lease subscriptions. We connect these services to the total tens (and maybe hundreds) of millions in size customer bases of our JV partners. We will buy back their 50% of the JVs when they need money (and be sure: they all need money sooner or later as they start losing money each month). E-Band we do also outside these JVs with the current telecom operators, as E-Band (broadband as good as fiber but wireless long range) has almost no CAPEX and OPEX plus is fast to install and has therefore a much better business model than fiber. We also buy fiber networks of the telcos (as they need cash and want balance sheet contraction to keep equity levels within in the finance contracts dictated ratio range) and sell them to the pension funds (who like infrastructure very much). The spread between those two prices is very high (up to 5 times). The telecom world will undergo paradigmatic changes. We explore those changes.

Free Television

We deliver OTT free television and video on demand (VOD). Advertising based. We roll out the Google model (profiling the free customer and selling specific audiences to specific advertisers) into television channel deliveries. ARPU \$ 500 per user, so higher than the \$ 360 of paid channel packages of the network operators (while we even have no limited channel packages for the subscribers like the traditional providers). The channels want the viewer data also (and that reduces or even eliminates the channel procurement costs). This free OTT television model will drive traditional connection

line/network operators like Global Liberty to bankruptcy. Those who don't like ads can pay per view (invoiced directly by micropayments or once a month on credit). We will bring television and video on demand to OTT for ever. Television will be delivered OTT. Period. No question about this. By no one. The old provider model is over. E-Band is here our friend again (certainly for 'undercabled' emerging nations). As is hybrid sat-tv (certainly for 'undercabled' emerging nations). Getting floods of new customer registrations is as easy as offering a free VOD movie to the customers of third party large customer bases/brands. Television costs will be zero, VOD costs zero or half and revenue will be high by both user profile IT and advertising. Migration is also a huge driver for this business model: we deliver the by migrants wanted motherland channels for free.

E-Band Internet

Delivering the same bandwidth as fiber, but for a fraction of the investments/CAPEX and costs/OPEX of fiber: that's what e-band does. E-band is highly disruptive towards traditional telcos (which have invested deeply in high density copper/fiber networks). Google buys e-band operators in its global fiber strategy, see for an example [google.com/search?q=google+fiber+webpass](https://www.google.com/search?q=google+fiber+webpass). E-Band has in almost all nations a soft licensed spectrum (low barriers, low rates, small areas). E-Band does high bandwidths by air due high frequency spectra (60-90 Ghz). The profitability of an e-band provider is multiple of that of a copper/fiber provider. E-Band is the end/dead of Global Liberty and its peers. As everything is moving to OTT services the data layer is the remaining revenue for the cable corps and E-Band robs them of even this last revenue flow. By e-band only central towers and customer premises devices are needed. No expensive high density peripheral networks needed. The attractiveness and disruption of the e-band business case is beyond obvious. We do E-band in new independent of current market players national entities or in JV with the national operators. If there's one thing existing telcos aren't that good at they would be in innovation: they are roll-out giants, not innovation giants. Banks with their huge customer bases are also nice roll-out partners, as are media corporations. All these extra sector market volumes could enter the telecom market easily by our e-band models. In emerging markets e-band is the way to 'include' the rural areas at very low cost into the global digital world. PPP based JVs with governments are therefore also an option (as the government than does the marketing). We chose for models where by the target groups trusted third parties will do the marketing. One last note: e-band will deliver the 'under-networked' ('under-cabled') nations of the Global East and Global South a head start in broadband digital networking: a backlog turns into a head start by e-band. Something the governments of the Global East and Global South really will like and therefore stimulate.

Mesh Networking

In each iPhone and in each Android device mesh networking is already available. Mesh networking is about creating a provider less network. How it works? Go to a website and subscribe. Your home router than will become a mesh node, channelling mesh traffic onto the internet. You install the app and anywhere you are and there's this mesh app in the neighbourhood too, it will try to setup a channel to the internet by this. Mesh networking is the end of the only revenue the mobile operators will have at the end of the day: even the revenue of last resort (the data layer) is slipping away for them by mesh networking. The governments of emerging nations will love the combination of e-band and mesh tremendously. IBM is pushing its mesh app, but IBM its DNA is just not fit for new stuff: dinos just don't win in a new world setting.

Car Subscriptions

Ownership of cars is getting old fashion, mobility providing is the new business model for cars. Traditional private lease is based on a wide choice of vehicles and has not that much advantages for the private customer, plus it add more costs than it reduces costs. This would change if a car subscription provider would make a good deal with a car manufacturer, most likely one with lower than expected sales or one that has no presence in a certain market/nations yet. Than the cost price would be significant lower and the advantages increase significant. Also here: own marketing is wasting capital:

trojaning the volumes of third parties is the best/effective path to profit. Then an ARPU of \$ 300 a year per car can be created and divided between the digital model operator (us) and the third party that delivers it's customer bases to exploit this new revenue flow.

Mobile Bank

Traditional banks are based on the revenues created out of the new money supply growth (in short: a mortgage is just a figure in a computer, what counts if a bank can fulfil its external obligations/payments). When economies stall credit growth stalls instant too and they are in dire straits as their cost levels are way too high. New lean/mean digital only banks will take over the market. You can't even call them by phone: you only can app them, but you will be served almost instantly without hanging on a phone). Service speed levels that are beyond the old banks just by knowing/using digital technology. The best example of such a bank is Bunq. This is a payment provider from Holland born in an internet company. A full digital bank. Recently substantially funded by the Wallenberg Foundation of Sweden for further expansion beyond the borders of Holland. The only thing these guys don't understand is that autonomous growth in banking goes way too slow. The client bases should not be acquired by marketing (too expensive) and not lean too much on social (goes too slow). The best/fast/voluminous client bases are at the telcos and guess what: they need new revenue flows/streams and can't develop these themselves. The banking software environment is easy to obtain.

IoT Networks

The internet of things is a huge buzz word with a lot of hot air accompanied by it. Certainly in the telecom world. As the telcos want you to believe that will be their next cash cow. Unfortunately they only know the buzz words and thereby live in a dream world regarding to IoT. None of them has any viable clue on how to make money on IoT. Plenty of buzz words and buzz texts, no business model what ever. We have developed some viable voluminous and profitable IoT business models. Combining the IoT technology with actual market potential: as networking will not be the business model (rolling out IoT networks doesn't cost an arm and a leg i.e. almost everybody can do it), but the combination of networking plus easy to add to existing 'things' mini appliances is. We can deploy the networking and applications within JVs with telcos or full independent. The first application is a mini geolocation (GPS and temperature) device in the shape of a 3 x 1 cm round mini tube. It can be added/attached to any 'thing'. So to cars, trucks, containers, pallets, shopping carts, dogs, cats, cows, wildlife, computers, etc: to merely anything of value that moves or maybe not be moved. Plus where additional temperature data could be of any value: machines, rooms, etc. Every customer has their own environment where they can see where the thing is located real time and/or what the temperature is, but the server technology can also feed by API other software environments that want to integrate this function. The second application is a 2 by 1 cm round tube that can be in one minute applied to the shower hose/heads. By an app the users can set their water temperature and the device/app administrator can hand out shower time 'budgets'. A blessing for the energy/water budgets in households with shower addicted teenagers. Both IoT devices will deliver the users/administrators direct benefits: so value is added and so a business model is viable. We do IoT without the buzz hot air by delivering real/actual viable here and now solutions. Telcos will love it, as they need new revenues here and now.

Fiber Deals

As the profits of telcos are in decline the search for balance size reduction (to keep equity ratios with the loan covenants) while balancing between dividend payments, market value and loan covenants. Getting rid of the networks (copper, fiber, mobile) at book value without any negative P&L and balance sheet impact is a dream for them in this time of struggling with the need to re-inventing themselves due revenue decline (mainly caused by OTT third parties and to a lesser degree also by price erosion due to competition). We take care of this balance sheet adjustment by removing the network assets. We sell them to the pension funds (who all start to like infrastructure and many of them must also invest a certain percentage their domestic markets). There's an

interesting spread potential between the buy and sell price. This has to do with the difference in ROI demand between a telco and a pension fund. Telcos need 15% ROI, pension funds only 3%. So the price of an investment sale from a telco to a pension fund can be 5 times higher. This is how the real estate sector functions (selling assets with good tenants to the pension funds) and the same model could also be applied to the sale of copper/fiber/mobile telecom networks to pension funds. As national telcos are taken over more and more by continental or global sector consolidation, governments applaud for the take over of telecom networks by domestic pension funds.

Sat-TV Packages

Emerging nations still are 'under-networked' / 'under-cabled' (copper/fiber/wireless). Certainly e-band can solve that for them at low cost: turning a backlog situation into a head start situation. But as telcos are not that good in innovation the roll-out of e-band will take some time. This time Sat-TV still has good perspectives. Certainly in the Global South and Global East, but also in the Global West (as telcos more and more concentrate their efforts on the cities and turn their backs on rural areas). On the other hand: by listing funded satellite operators have extended their capacity quite severe, plus there are by multiple by national governmental funded operators too, plus the prices of satellites and launches have gone down a lot. By all of this there's an severe over-capacity in the satellite transponder market. Also on the for High Definition (HD) television transponder market. This is why we think some of them (those in need of revenues) are open to a 'pay as we go' model. This means that they get a fee per subscriber (topped with a maximum) and not a high fixed month fee from start. We offer them exposure to the customer bases of telcos (something they like very much) to get these deals. We offer telcos a turnkey sat-tv model, they only have to market. It will give the telcos a new revenue flow without any investment nor realisation management. A safe bet for them. We can buy content cheap in per viewer prices (as we operate both off-line and hybrid technology) and we can deliver the channels the view data they are longing for as an extra channel price reduction method.

Data Exchanges

Just like in aviation in data there's a de-hubbing trend going on too. Hubs are only good when they have advantages, otherwise they are only extra costs/distance/hubs. Direct connections are exploding. The large continental hubs are de-hubbed and the end of this development is not in sight yet. Each city will have it's own data-exchange. Just like in the past each city want to have a train station, a highway exit and fiber connections. The core of a data-exchange is a huge router (as in: the biggest in the area/region). We offer cities a data-exchange concept (financed and managed). We make a deal with a large global router manufacturer to be able to do this. We charge for each port used by an AS (a corporation or a telco or a municipal or a government). An AS is a unique network part of the internet which telcos, corporations, municipals and governments can acquire. We kickback a part of this fee to the router manufacturer. We charge for peering dating/services too. Peering is when two peers agree to handle each other traffic without further costs.

Data Centers

Around data-exchanges data-centers will grow automatically, as data-exchange users want to located their routers, servers and storage as close to the routers of the data-exchanges as possible (as they than also can make direct connection with large peers). It's a fact that data-centers are the most expensive real-estate locations (this is caused by the real-services additional offered, like power, cooling and security). The market of data-centers becomes more and more a market of power availability (as that is the most limiting facet in all data-center investments). And as half of the power is used for cooling, passive cooling potential is the ultimate data-center specification. The market for decentral data-centers will surge i.e. is not even serious started yet. Everything (processing and storage) in a cloud nearby is the name of the new game. In a legal system that is identical to the one the company or government is operating in/by. Back2back in legal system.

Video Communication

The market in video communication is already covered/cornered by Skype and Webex (playing both sides of the market) right? No, that's not the case. Both these two service suppliers are delivering not the 'full package'. Companies, corporations, organizations, governments would like to invite people in a full own house style ambiance. They would like to store their video communication central. They would like to have the choice to legalize communication by storing it at trusted third parties (having a video meeting will replace making contracts at fast pace). Etc, etc, etc. The technology is in HTML 5, so accessible on any computer by just a click of a mouse in an invitation without any software to be installed first.

Virtual Computer

A virtual computer for every telco user. This technology makes every software program ever written available on subscription in the browser if the IP rights holder of the program agrees. Making real remote productivity (of all wanted software environments) available (and not just the Microsoft Office suite). The technology is ready and can be demonstrated. The only thing that must be added is the billing environment. Imagine that there was a company could say here in now to all the telcos of the world: you can offer next month all your customers a virtual online computer in the cloud as new additional product. Imagine that this company not only could say this to telcos, but also to cablecos, ITcos, banks, insurers, TV-manufacturers and to literally every third party huge customer base. Would they take this extra ARPU opportunity? Imagine that this company could make here and now deals with all the software manufacturers of the world and issue monthly licenses. This would dwarf in turn-over and functionality the Apple AppStore. Imagine that the billing will be done virtual branded for all these huge customer based third parties. Imagine that this company would be able to offer a real screen (not RD) ICT model here and now. And by the fact that they facilitate all the telcos of the world will become the main ICT company of the world. The new ICT model (as in: the new Microsoft) for the next decades. Would this company be able to close deals with any telecom operator? Would this company be able to contract each interesting software manufacturer (with out ANY needed change of software code)? Would this company have a build-in customer lock-in by look and feel and by data storage?

Remote Printing

Just as around the hubs of postal packet logistic operators like FedEx, DHL and TNT electronic corporations build their continental warehouses, so print streets will be located on these locations to (to guarantee next day delivery). Remote printing will be used by corporations a lot, not only by their sales people on the road, but also by their internal sales. It's about speeding up quality response, it's about massive outsourcing of physical handling of paper communication.

Remote Storage

Cloud storage is one area where national players can fight back the OTT wave that is washing them away right now. Thanks to NSA, Snowden and WikiLeaks are the external drivers of this development. Currently telcos are buying storage as service from the few global operators in this field (which solves nothing in the nationalization, geographical contraction, of data storage and leave them with a marginal margin on this activity. We offer telcos a) own technology (so they solve those two issues) and b) business models for it. The technology used is superior over the current global brands (multiple 'gods' instead of one 'god' core, plus it can deliver geographical data redundancy in any wanted multiple level. It also delivers email and database redundancy. See sanindus.com for some information about it.

Trusted Single Sign-On

The holy grail in data is single-sign-on. That's the core of everything. Everything written in capitals and period between each character. The current OTT parties (like Google, Facebook, Twitter and LinkedIn) are longing/aiming for this holy grail. It is the hope of last

resort for the national telecom operators to win this back. NSA, Snowden and WikiLeaks are helping them by this. We have a single-sign-on (SSO) and multiple layer/technology based id verification model for the national telcos.

Better Content

As all mainstream news/content organizations are delivering merely propaganda of governments and interests. The information consumer is served poorly and starts to understand this. There is a market for big interests independent media not driven by pleasing governments and corporations. In Holland the formula of Weltschmerz is thriving, in the USA many on the edge of becoming the new main stream channels too. We want to internationalize the Weltschmerz formula by switching to English, Spanish, Russian and Chinese content. With a better studio with a video wall and remote digital interviews with the smartest minds of this world. Then we offer this content to cable companies and we explore it ourselves with target group suitable/appreciated advertising too. The viewers are the high educated: in other words: the economic spenders. Advertisers like this demographics very much.

Emotion Detection

Face recognition is no longer one of the cutting edge technologies: it has become general available all over the place in multiple services and apps in banking and surveillance. Emotion interpretation is the new technological frontier. Emotion recognition is a technique used in software that allows a program to "read" the emotions on a human face using advanced image processing algorithms. It's deep analysis of large volumes of several data sets. Robust emotion recognition requires collection of large number of diverse "face features" and analyse those for predicting emotional state of the person. Classical image processing and computational methods cannot correlate this big data for meaningful emotional state predictions. Such techniques do not scale as well when applied to large number of users and big data. Without any hardware sensors our proprietary algorithms can detect up to 98 physiological parameters and variants from the normal video stream including: pulse, respiratory rate, diameter of the pupils, eye movement, head turns, facial muscles movement, event driven behavioural patterns. An high prediction accuracy of up to 80% with 20 seconds video stream. So by analysing video stream (recorded or live) it can predict emotional state with an accuracy of up to 80%. Facebook for example can use this technology to tune/adjust both the content and add displayed: we give them more user data so that they can service better i.e. more adjusted their users and by that increase user experience and earn more. Clever use of advanced machine learning and signal processing make our proprietary algorithms correlate and converge fast and, process big data in real time. This makes our technology applicable to diverse usecases instead of just a few. Therefore the service could be used in many other sectors outside Facebook: Emotion detection is applicable to numerous real life usecase in security, law enforcement, counter terrorism, banking, insurance, dating website, recruitment, employee engagement, advertisement, media content impact analysis, healthcare, telecom, consumer application, etc, etc. Emotion detection and analysis is a fast growing Billion Dollars market offering massive potential of value-creation for early investors. The core market will grow from USD 6.72 Billion in 2016 to USD 36.07 Billion by 2021, at a Compound Annual Growth Rate (CAGR) of 39.9% from 2016 to 2021. By comparison, facial recognition core market size is estimated to grow from USD 3.35 Billion in 2016 to only USD 6.84 Billion by 2021, at a CAGR (Compound Annual Growth Rate) of 15.3%. See for more of this sector financial projection data: marketsandmarkets.com/Market-Reports/emotion-detection-recognition-market-23376176.html. We hire a Russian team that made a face emotion detector focused on truth/lies application for the security departments of the nuclear service industry in the Nuclear Research Institute, Moscow and move them to Europe to use their emotion detection knowledge to build a total new cloud based environment, making it from an application into a service, extend it by more emotions than stress only and make it also applicable for the emotions of non-caucasian people. The technology is underpinned by advanced Machine Learning, Signal Processing and Statistical models. We could liaison the emotion detection fund with another fund in a new joint fund owned entity that does

voice recognition, face recognition, mobile device tracking together in crowds. When by this technology face emotion analysis in crowds is added following multiple persons with a certain defined emotion profile in a crowd becomes possible too. Then we create a global unique value in the surveillance market too (train station security, airport security, political rally security). Even speaker approving ratings i.e. crowd emotion ratios can be analysed and live reported by this additional crowd technology.

Construction Innovation

Basalt fiber is more stronger than kevlar. Basalt fiber is made of washed and than melted basalt rocks. Nothing added. Just like carbon fiber is changing the aviation industry at fast pace (lighter planes so/with less fuel consumption), basalt fiber panels will change the construction sector totally and for every. Basalt fiber is already replacing concrete reinforcing steel rods at fast pace: better, easier and cheaper in purchase and appliance. What the pallet and container did for trade, will basalt panels do for construction. Not only because of the material specifications (weight, strength, application, fireproofness, isolation, etc), but much more of the change will be done/powered by smart panel standardization. The standard panel shapes (variables: strength, fireproof thresholds, lengths, width, colors), the pre-included internal infrastructure channels (wet/dry/air), the connection method (easy, beyond strong, waterproof, fireproof, etc) and the digital design environment (with an open both free and paid model library) will drive this change to the max. Pick your dream house or building, adjust it, order it, build it. The construction is self-supporting to 5 stories high. High rise buildings will become much more light in weight due first these panels in floors and later-on by integration of these panels in the core too. Building costs will be half of what they used to be. There is no better example of disruption than these basalt fiber based collection of standard panels with these specifications and options. The construction world will be totally (one hundred percent) different 5 till 10 years from now. We bypass the slow integration of new materials by architects by the online environment. Patents are on the panels and the machines. Even a floating commercial airport on sea is possible with these panels (any structure beyond 500 meter in size is stable at sea regardless the weather). We license the concept to national operators. In huge federal states (USA, Russia, China, India, Brazil, etc) we license to state level operators. The license fee is 5%, the national operator makes also 5%. On each building build. This disruption is the most profitable ever.

Resources Exploration

Finding the most easy to develop energy/resources/water deposits is what both nations and corporations want. We have access to large areas resources (energy, minerals, water) exploration technology (based on the Soviet science before 1991, in which was 'finding migration channels' from the outer core region). This exploration technology delivered Russia its proven reserves and made it to the biggest hydrocarbon explorer in the world it is today. After 1991 all Soviet science was labelled outdated, everything must be done the American way. For the science field of resources exploration this was a loss. Soviet exploration science was based on a total different assumption: that hydrocarbons were not fossil, but or cosmic (better said: by big bang or other cosmic events created), or geological i.e. planet core (better said: outer core region with 330 to 360 gigapascals is 3,300,000 to 3,600,000 atmosphere: as an elements factory) in origin (in plain english: maybe oil is not ketchup of dinosaurs). An very valid argument for this thesis can be found by the abundance presence of hydrocarbons at the largest moon of Saturn called Titan (see www.google.com/search?q=titan+hydrocarbons). But this soviet science based exploration technology certainly wasn't stupid nor outdated at all, it only had a still successful completely different approach. By it's total different approach the exploration technologies where also quite different. One professor in the world still is improving this technology further. We have contracted him and his team. We offered them liaison with teams operating remote sensing technologies (by low orbit mini satellites and by drones), teams that can process/analyse these huge quantity of digital data streams and teams that know the physics for interpretation of these data streams to improve his technologies further. Plus we buy existing satellite data from many sources.

Resources exploration mapping is just big data analysis. It's 90% software and 10% geology. It used to be the other way around. This is where the disruption kicks in. The technology also maps water aquifers and mineral resources. Some simple examples: First this technology maps the whole licensed area or the whole nation's area. Then the technology also analyses on prospect locations ground samples on 1 meter depth, if there is a certain isotope in the soil they now they have hit a reserve and only then they start to use traditional methods to assess the size of the reserve. This technology also works for underground water aquifers. Libya for example has the biggest today known fresh water aquifer under its desert soil, Gaddafi was building a huge water infra to distribute the fresh water from this aquifer to the whole nation of Libya. See for this huge national development done by him: en.wikipedia.org/wiki/Great_Man-Made_River. These aquifers will enable nations to boost their fresh water agriculture enormously. For those interested in the technology we have two detailed powerpoint presentations as file: one on the technology and one on proven efficiency of the technology. The business model has several options: the first is mapping a nation and then seek a license for the potential areas (these licenses could be sold or lead to proven resources by test drilling), or the potential could be brought into production too, or doing all or parts of it in a PPP based JV with the state. We could offer nations a PPP based JV for resources exploration. We also could offer nations only for each proven resource a PPP based JV for bringing those resources to the market. See for more information on such resources PPPs: www.planck.org/publications/Emerging-Nations-Energy-PPP for energy and for the minerals version www.planck.org/publications/Emerging-Nations-Minerals-PPP. Pennies become more than dollars with this technology used in this model. Disruptive to all old energy and mining corporations. The mapping, the exploration and all the production locations could be separate funds too.

Resources Extraction

The old energy/mineral exploration model was in the hands of the 'seven big sisters' (the old global energy resources operators) and some mining giants. As emerging nations got higher self-awareness, they start to dislike this setting: they just need the revenues of their resources to run a decent/solid/modern state model. See for the energy specific version www.planck.org/publications/Emerging-Nations-Energy-PPP and for the minerals specific version www.planck.org/publications/Emerging-Nations-Minerals-PPP. The old imperial/colonial model died when Putin renegotiated the resources deals made by Jeltsin. From then on 50/50 has become the leading model in exploration, half state owned and half exploration corporation owned. The old players can't adapt to this new realities that easy: a cart track issue. They don't see the advantages of the new model/setting/realm like state guarantees, tax absence, army protection, etc. As we will offer nations a PPP based JV for resources exploration, we also will offer nations for each proven resource a PPP based JV for bringing those resources to the market. Think Glencore and Trafigura but without resources theft and corruption, so a mutual interest based operation between state and the JV. This model is so much easier to handle (also in terms of finance) as the states deliver the PPP based JV state guarantees, tax freedom and army protection. It is disruptive to all players with an old mindset. Can these old players change easily their mindset and adapt to the new realities? No they can't: the old model is their DNA.

Cavitation Energy

In physics the law of conservation of energy tells the fact there could no energy be lost nor created. Cavitation is the process of gas bells that occurs in pumps. Bad pumps have a lot of cavitation so they don't pump maximal, but they use more energy as they waste energy into heat. Cavitation of water seems to have a high energy output in heat than put in by power. Research tells that this is the result of H meeting O to exploded in and exothermic reaction (en.wikipedia.org/wiki/Oxyhydrogen), but after calculation of both the amount of H ions and the energy output of the exothermic reactions (formula available on request) there's still an excess that is not explained by this calculation. It seems that H₂O molecules are not all in the same state and have all different energy absorption levels (lowering molecule binding: see [Planck Technology Funds – \(global economic sectors disruption\)⁷ – Page 10](http://en.wikipedia.org/wiki/Self-</p></div><div data-bbox=)

ionization_of_water). Due cavitation this (from origin solar input aka powered energy) comes free as the energy of breaking up the molecule by cavitation is lower than the energy output of merging of H with O again. Nobody fancied cavitation as energy source because it was in contradiction with the law of conservation of energy, but this explanation could be a game changer. Than it's just harvesting energy which the sun has put into water over millions of years of time. A higher output than input is / would be revolutionary. We want to build huge cavitation plants. First where heat is needed, later on (when we start to be very good at it) also for (de-central) power plants. This fund is very speculative, the technology on the other hand is very simple and the investments are low. Proof in a scientific setting is the first goal. Maximizing energy output is the second goal. Power generation is the third goal. The revenues are first in the patents of conic shaped holes in the cavitation drums and second in delivering heat and power engines.

Solar Distribution

China is the epicentre of the global solar/PV industry. Not for reasons of cheap labour, but for reasons of excellent crystal growing physics knowledge and therefore capabilities over there. China has huge and generous export finance arrangements. Certainly when the counterparty has state liaisons. We offer governments of nations a national solar program inclusive 3 year finance in a PPP based JV setting. This is an offer no state can resist, not in the Global North as in the Global South. The turnover volume will be beyond imagination. The margin attractive. The states guarantee the payments. We offer it turnkey (products, finance, marketing and advertising and communication templates, online blank labelled order engine that can be branded in each name). Each media and retail brand can run the standard campaign with the standard products and standard finance. Making solar an easy choice for everyone.

Oil JVs

Russia has become the largest oil exporter in the world. Russia can supply more oil than they have domestic and foreign demand. Russia is now buying a long term stable client base by a mix of both credit and discount. We can get Russian oil on credit with a discount if we establish PPP driven JVs in nations. That's what we want to do. The volume is gigantic and the margin attractive and demand will be there for a least more than a decade or longer. Is electric the end of oil? Every vehicle electric powered can only be met by massive solar roll-out or by massive cavitation roll-out (as nuclear is not that easy to build in a short time frame), as electric powered vehicles will drive power demand up beyond anyone's expectation (nobody really understands the amount of energy we use in transport: a lot of surrealistic non-fact based nonsense is aired in this realm). As well that the current install base of vehicles has an oil fuelled combustion engine. City air quality driven mandatory GTL use within city borders by local legislation is also no demand demolisher (as it is gas to oil with a price premium). Oil is with us for at least 2 decades. And air traffic will be oil powered till plasma technologies will break through.

National/Sector Clusters

As the cities of the Global West are no longer the centers of the global economy, plus as people work more dynamic than some time ago using less office space, plus as interest rates are artificial low in the Global West so new buildings still rise, is the vacancy rate of office building in most western metropolises enormous. This vacancy will never be used by the (declining) domestic economy. The only hope for this massive vacancy is globalization: offices for companies abroad that seek a footprint in the economies of the Global West. We offer embassies and consulates a national trade center of their nation in those vacant buildings. We do this in all nations. Vacant buildings can be bought at 10% of their former price and the revenues can be the same as they were (as this about renting much small spaces and even renting out wall for posters and show cabinets). Plus additional services can be offered. Those tenants that grow hard will need other/bigger buildings and there's where the revenue bonus is. We developed the concept World Clusters (see worldclusters.com). State communication will do the marketing.

Rail Schedules

China and Europe are now connected by sea (relatively cheap and slow) and by air (relative expensive and fast). The between solution is rail cargo schedules between China and Europe (delivering the wanted speed by the wanted low prices). The first of them have been come in place in 2016, but the volume can be expanded at the cost of the container carriers of the high seas. The capacity of existing tracks is not even used for 1/1000. No new tracks are needed first, it's more a schedule problem than a volume problem. The benefit is 6 weeks faster delivery of manufactured goods (and by that 6 weeks less trade finance need plus more satisfied customers). Establishing a JV with RZD (the Russian state rail corporation) could be arranged. The Chinese new silk road initiative called OBOR (en.wikipedia.org/wiki/One_Belt,_One_Road) is backed by the new AIIB the EurAsian/Global development bank of China. It promotes this new economic zone from Shanghai to London as major economic boom for the 21th century. Coastal development has peaked, hinterland developing is now starting to boom. For several reasons: for costs of living (and thereby labour costs), for quality of life (pollution in the Chinese coast metropolises is more than people want to accept), for domestic policy reasons (keeping the east provinces within China) and for geopolitical reasons (avoiding dependence on the by the USA dominated high seas). So the hinterland will become less and less an mainly empty no-mans-land. Disruption from sea/air to rail.

Desert Agriculture

Global agricultural is powered by fresh water. This is strange as only 1% of the water on earth is not salt. Global agriculture at large has bet on the wrong water card. Forgetting what the other 99% has to offer. Forgetting that 1/3 of the global land mass are deserts and that 66% of the global surface are salt oceans. Those two abundances could be combined with two other abundances namely sunlight available in desert regions plus commercial crops that love salt water. The four of those delivers a viable economic model. Salicornia is the best example of such a crop: it has equal specifications as soy in proteins and oils percentages: see en.wikipedia.org/wiki/Salicornia#Industrial_use. We developed a salt water powered agriculture system for the deserts of the world (which by the way hold a staggering 33% of today's global landmass). We make global food scarcity a thing of the past and replace it by global food abundance. Furthermore we phase out all industrial tropical forests destructing palm and soy agriculture. Plus we solve the global migration problems in their roots (delivering viable national economies in the desert nations at stake). We solve terror, as those with a job have no time to do terror: they have a business/income they put their efforts in. Our salt water based agriculture makes the world significant more green storing water in soils, cooling the hot areas of the earth significant too. See desertcorp.com for a more detailed description on planck.org/publications/Sea-Water-Based-Desert-Greening.

Leisure Homes

We refurbish/restore the stranded asset class of bank owned vacant homes and put them for rent on Airbnb, Expedia, etc. By this banks can re-activate their non-performing house mortgage loans with both attractive profit surplus and attractive tier one capital demand ratio consequences. One geographical example (proven by study done by a PhD): the small island state Curaçao has 8000 vacant homes. This is not different in other sun holiday destinations too. Or we put the homes on our balance sheet or we create a JV based SPV together with the banks. The banks like this re-activation of non-performing loans very much, as their ratings will go up and their capital use ratios can grow again.

Food Conservation

Conservation of food can be done without chemicals by using HPP High Pressure Processing. See en.wikipedia.org/wiki/High_pressure_processing. It kills all (!!) germs by high pressure, not by high temperatures, nor by chemicals. Keeping even meat and dairy packed in air tight plastic without cooling good for months without any chemical added. Physics has so its advantage above chemics. Currently this HPP process in done in a machine that handles small payloads per batch and the products must be placed by hand

in the pressure capsules. Both facets make HPP relative very expensive (\$ 1 per unit). This cost price halts back the massive use of HPP within the food industry. Currently it's mainly used for relative expensive products like in plastic sealed meat and plastic bottles of exclusive/gourmet sauces. We know how to do it in huge container sized rooms where truckloads of packed products can be rolled in and processed fast and at low cost (\$ 0.10 per unit). Making these pressure rooms to one of the most attractive real estate objects in terms of ROI. For large food manufacturers that have tested it and want to roll-out it massively on their products: we can build these rooms on-site of their plants so they don't have extra trucking/logistic costs, nor time delay in exchange of long term volume contracts. How to build rooms this size than can handle these pressure several times an hour is the core business model. It's a merge of physics and construction. HPP will become huge. The only two limitations are that the packaging should be made of plastic (as it should be able to resist very high pressures) and carton boxing should be replaced by plastic sealing (as water is used as the pressure medium). It will replace all meat and dairy conservation methods and will reshuffle the global meat and dairy market severely. Milk and dairy can have their original non processed, non-cooked, non-pasteurized flavour and could be exported in non-cooled containers around the globe. But also other products like sauces, curries, etc would use HPP to increase both their quality and shelf-life-time. HPP will change food production, distribution, shelf life times, geographical reach, etc. HPP is a huge tool is conservation of food surpluses to bring them to the global markets. HPP will increase global food quality and global food supply. It will totally disrupt at least the global meat and dairy market totally.

Iron Milling

For those interested in interested in value adding on iron ores i.e. metallurgy we have access to the ITmk3 technology of Kobe Steel that delivers 10% higher iron output out on ore, uses 33% less energy, don't need high grade/temperature cooking coal and can be installed near the ore mines. This technology will eliminate the need for inland and global transport in iron ore and cooking coal too. This technology also will bring the whole iron milling the with attached value adding to the ore nations. These ITmk3 next generation iron mills delivers iron nuggets that could be exported just in containers to any iron further processing mill in any nation. Transport of ore in huge ships from huge docks delivered by huge bulk trains will become something of the past. It will disrupt all old iron mills by 10% more output and 33% less energy use.

Diamond Exploration

For those interested in diamonds we have an exploration tool on stock: one specific tree (pandanus candelabrum) is growing right above the kimberlite piles in which all diamonds are found. For the science behind this see this article in GeoScience: econgeol.geoscienceworld.org/content/110/4/851. Find these trees and you find a kimberlite pile full of diamonds under it. Bij drone based video/sensing technology and by additional sensing/video stream analysis technology we will find these threes and buy the land they grow on and start excavate the kimberlite piles, bringing the global price of diamonds (jewellery and industrial) down while making good money and also erase the global diamond monopoly of the Beers Corporation which they hold for a century.

Salt Substitute

Although there's conflicting science on the effect of salt in a human body (concentrated on the dilemma: is salt bad for blood pressure reasons or is too less drinking bad for kidney function) the global mainstream wave is that we should cut on salt consumption and they are probably right (as salt is the cheapest way to add taste to processed food, so we consume a lot salt out of processed food). We found a technology to process mushrooms into a salt substitute that a) doesn't have the downsides of salt and b) add more taste to the food it's added too. So a mushroom based taste amplifier that could replace fully all salt use in food processing. Mushroom is rich in umami (one of the 5 human basic tastes: see en.wikipedia.org/wiki/Umami), which is very unknown in the western part of the world and very well known in the eastern part of the world. The mushroom powder make by this process release all the mushroom umami potential. The

process is very cheap (as result the powder is only a little more expensive than the cheap salt) and therefore the food industry will switch an mass to this salt substitute. As the global food industry made in a lot of nations worldwide sector/government covenants to reduce the use of salt in processed food. This salt substitute costs a little bit more than salt, but add better taste to the product it is used in. The technology used for production is based on physics and not on chemics.

Stone Fertilizer

Agricultural crops just don't need only nitrogen, phosphate and potassium (the main chemical fertilizers of today): they need a wide range of mineral nutrients. These are the forgotten fertilizers. Current agricultural science/methods/systems doesn't supply and therefore are exhausted in most of long use soils. In organic farming these mineral nutrients are somewhat recycled. But the deficit is general in agriculture. The last time the earth was severely fertilized by mineral nutrients is during the last ice age as that crushed a lot of rocks plus spread them over the globe. General refilling mineral nutrients is easy: just mill stones and add this stone dust in a ratio of 1% to the fertilizer. But as the precision development in agriculture is booming, soil samples and crop demands will lead to specific stone dust combinations for that crop on that soil. Stone dust for this way of fertilizing is mostly made from basalt rocks (as that's molten lava: minerals from deep earth). See for the publication that started this micro nutrients science the 'Bread from Stones' publication of en.wikipedia.org/wiki/Julius_Hensel. Wikipedia states: "It functions the same way that the Earth does: during an Ice Age, glaciers crush rock onto the Earth's soil mantle, and winds blow the dust in the form of en.wikipedia.org/wiki/Loess all over the globe." on en.wikipedia.org/wiki/Rockdust. But each year winter and summer does the same, of course in less than ice age volumes/speed. The small amounts of cosmic dust (google it) that steadily/continuously rains down on earth has the same fertilizing effect. The huge sand bowls of the Sahara fertilizes the Amazon by the jet streams that circles the globe in the same way. The best proof of the fertilizing effects of micro deposits of chemical elements could be seen at the proven and well known fertility of loess soils all around the world (see en.wikipedia.org/wiki/Loess#Fertility): loess is just mainly stone dust. Another example is that wheat farmers in the Global West use sulphur as sub-fertilizer now coal fired power plants are declining in numbers: wheat needs sulphur to grow. Building a wide line of chemical different rock dust attached with an science/user database of results will be very profitable. Also the global institutions like this huge impact change/potential very much. The media love this kind of technologies: head lines like 'stones into bread' are just what their audience, both the white collared and blue collared sections of it want to hear. So function, economics, market, support and media coverage are clear.

Solar Paint

Nano based PV coating: just spray 3 paint layers on the outer skin of any man-made object and the whole outer skin of the object (buildings, cars, etc) becomes a 3D solar panel at low level costs. Earned back in just one year. Reducing energy bills of buildings, making energy de-central where it's needed, extending reach of electric vehicles by on way PV power generation. We can get the patents for it. Customers will be the global paint manufacturers. The pay for the technology. Delivering a world of cheap and clean energy.

Meat Substitutes

A rapid increasing number of people around the world don't eat meat everyday. Tasty meat substitutes could serve the fast growing veggie/vegan demographics. These substitutes need to become as tasty as meat which is a huge challenge. The purpose is not creating own production facilities, but just exploring a brand, so only research, plus purchase of research, plus branding by media exposure, plus license sales as activities. The global meat market is huge, channelling each 1% of it into these meat substitutes equals a huge turnover. We've lined up some interested people in several facets of this field.

Natural Flavors/Tastes/Colors

Using physics to totally destruct natural material (fruits, vegetables, meat, dairy, etc) to almost molecule level. That is the way to replace artificial flavors, tastes and colors in food. Replacing them is the trend in i.e. the direction of the whole global food industry. Doing it at less cost is the challenge for them. This technology delivers it. The core of the technology is dropping the already ground/milled substance on a big fast spinning disk. At the outside of the disk the speed is tremendously high, so the substance will be launched at tremendously high speed (delivering destruction to near atomic level). By this the cost price of using natural flavors, tastes and colors gets down to artificial peers. This technology will ruin the artificial flavors, tastes and colors industry and all its global players. This market is huge. One of the current global artificial players in this field will buy the technology and delivering a good exit to the investors.

Virtual Universities

As state grants for students are worldwide heading to zero and students all over the world has to pay by themselves for their studies (or by parents tuition or by drawing student loan programs) students seeks for ways to get their degrees without starting their careers deep in debt (even more as the career wages perspectives are not that bright as they were). Universities in general are in decline for this (as foreign studies fill in the market generously). But more and more universities starts to recognize the impact of all of this and seek for ways to give students with less budget still the realm they need for achieving a degree. For those universities interested in e-learning we have a model for universities by which students can obtain a degree the (almost) full digital way, giving students the possibility to start their career and family life not deep in student loan debt.

Water Desalination

For those interested in sun driven salt/sea water desalination we have access to a high performance solar driven solution that can easily and at low costs be deployed in any scale, without any need of fuel nor chemicals. It's mini CSP on tubes that follows the sun during the whole day. It could even produce both fresh water as energy (if a turbine is added). As said: easy to deploy, low capex, low opex (no fuel and no chemicals), environmental friendly and delivering both fresh water and energy. Quite a series of specifications for the sea side world where water is expensive: it will lower the costs of fresh water substantial for the cities in those regions.

News Analyzer

Fake News creation and propagation can be controlled to large extent with a solution that could also embed a specifically designed blockchain. Based this metadata the next actions could be done: a) identity of the device & the user, b) an auditable trail (which is a basically the blockchain itself) and, c) a user experience that could validate the content with just a click. To minimize the (growing) length of the blockchain with every onward share/broadcast of the news, a machine learning algorithm will decide as to the size of the metadata to embed. This service can be monetized easily by offering the "content validation" as a cloud based service. For example end users, like you and me, can validate for free while organizations will have to pay a subscription fee. Open source technologies like Spark 2.0, AWS, SciKit and MIT's Funf will be used.

National Development

We offer governments a PPP based JV for economic development. We deliver them economic models for SMB/SME that can be applied numerously in their cities and villages. State guarantees will be issued to fund those SMBs/SMEs. State communication will do the marketing. To state it bluntly: it's about modelling capitalism. Making it available for everyone. An inclusive version of capitalism. Social/economic design by means of capitalism. Sector modelling instead of state planning. The big difference? Not enforced implementation: it's servicing open source based the development of new sectors for SMEs/SMBs, not imposing mandatory closed things to sectors: quite a difference: as it's a self-correcting model.

Food Sourcing

An IT system that tracks food from farmer to the consumer. It's a complete non-processed, but high precision grading and oxygen-free packaging model supported by IT, global logistics, virtual branding and retail chain brand/aisle combination. An extended description can be found at www.globalfood.info. It delivers the food based capital streams of the global cities maximal to the global rurals: connecting them by products+IT+money. One can see all information and connect with the farmer that has grown the product in a Facebook like setting. Food transparency is here to boom and will play a major role in food/retail branding. Blockchain will be a major part of securing authenticity of the supply chain data.

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Other Disruptors

We have access to many more disrupting technologies. Some short descriptions of some of them: For those interested in disruptors in the global food chain we have some other global food sector disruptors on stock too: like energy saving and milk quality maximal conserving milk powder for export production. For those interested in agriculture sector disruption potential we have a global disruptive manure solution (needed in regions with excess livestock to too high P and N levels in soil/water in those regions) on stock too, plus both agricultural remote sensing and agricultural spraying drone technologies for making precision agriculture that makes high yields by low costs here and now possible. For those interested in new aviation routes we have a Chinese government backed airline concept on stock too (connecting the Chinese cities with more than 1 million population by direct flights with Europe and Africa, also backed by an European state by opening visa offices in those cities). For those interested in gold: we have model to harvest the average 18% spread (after purity correction, after refinery spread) between unprocessed mining gold and LME prices on stock, based on spectrometer technology (sends a radiation wave and all atoms of all elements echo and the echo is received and analysed). For those interested in recycling the chemicals used in chemical water desalination we have access to technology to do that. For those interested in fresh water purification by physics we have access to a very energy effective on electron physics science based purification technology.

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Basket Model

Just make your own selection with the global economic sector disruptors with the highest ROI according to your assessment and in the weight you want to give each of those by you selected.

In other words said: just tell how much to invest in which economic sector disruptor. It will be handled accordingly by us. Giving you an unique and according to yourself the best portfolio on the winners of tomorrow's global economic sectors possible. The models will have their IPO when they're grown up (within 3 years is the general target). That's the ROI moment, or one could hold the shares and profit of further growth, that's up to everyone to decide by themselves. But we create an exit/ROI moment for those who want to cash their investment plus ROI.

Another option is that you just choose for a sector (IT, telecom, resources, agriculture, food or national development) you want to invest in and we will invest on your behalf in the sector of your choice, delivering you maximal ROI (as capital will also used for the first investment slices in some disruptors). Delivering maximal return managed by our knowledge/experience.

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ROI Leverage

Of course is the ROI leverage for the early funders higher than for those jumping on an already gaining in speed bandwagon later-on.

In theory the standard / non-specific (just as an example given) share/ROI formula for this is simple: divide total capital demand in 10 slices of 10%. The first funded 10% capital got an extra 9% of the total capital related shares/ROI and the last on board coming funds for the last 10% capital just will get only 1% of the total capital related shares/ROI. Of course 10 slices of 10% could also be 20 slices of 5%, or 25 slices of 4% or 50 slices of 2%: for the basic theory the number of slices is not important.

The slices model is just a theoretical explanation, as of course extremely well performing or well prospecting units have enough space to go way much further in this model of favouring the early investors. Of course the early stage investors are rewarded significant higher than the 'me too' investors than will join booming models later on. And yes of course this all theoretical, as the market (demand versus supply) will give a by negotiations determined leverage to all new capital input. This is what will happen in reality: the management of a fund will negotiate with each new capital input party regarding the valuation of the new capital versus the old capital and than will ask approval for this capital extension to the current capital partners.

Our basket model delivers the possibility of multiple early stage / high yield investments which delivers maximal ROI leverage (spreading capital on multiple technologies by the highest ROI potential combined with the early funding high leverage/yield benefits).

Of course the expected ROI differences for each technology and is thereby a matter of own assessment/calculation for an investor. We can supply much market data as foundation for such assessments/calculations. ROIs are a combination of the technologies involved, the team, the timing, the development model/costs, the marketing model/costs and the operational model/costs.

Most of the investors will be corporations that have a vested interest in a sector already and thereby in the development and the roll-out of the certain technology a certain fund handles, so they know already everything there's to know on that specific technology.

Management

The native soil of all these economic sector disruption models is the Planck Foundation, founded by Gijs Graafland in 1999 in Amsterdam (see for more information: planck.org and planck.org/testimonials).

The objective of Planck Foundation is Interdisciplinary Science Integration (in other words: technology and models) for achieving Global Sustainable Prosperity for all of mankind in the 21st century and beyond. Over time Planck Foundation got a mega input of technologies from all around the globe. That lead to the establishment of Planck Technologies CV which is the birth realm of Planck Technology Funds.

Planck Technologies CV will hold 50% of the shares in each of the initiated global economic sector disruption funds. The capital partners together hold the other 50% of the shares in each global economic sector disruption fund. Substantial funders in a specific fund will be invited to the Non-Executive Board of that global economic sector disruption fund.

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For an introduction to the main team and/or the technology teams of your choice (or for a basket model): Email Gijs Graafland on graafland.gb@planck.org.

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