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How Regulation Affects Business Model Innovation

Abstract

Business regulation is the norms, standards, principles and rules, and their enforcement governs commerce. Firms need to be aware of the potential impacts of regulation on their business models, anticipate changes in the regulatory landscape, and adapt their business models accordingly. This article surveys seven archetypes of regulation and, from that, identifies six key regulatory trajectories affecting business model innovation. The article offers a 2-by-2 model to assist managers in coping with business model innovation reactions to both negative and positive regulatory effects.

Introduction to Types of Regulation Affecting Companies

Consider this statement:

> *"Why should we be bothered with regulation? After all, isn't business model innovation merely a question of altering how we conduct and improve our own business?"*

A few decades ago, this perception might have been a reasonable one to make. There was relative independence from regulatory pressures in a world where the focal firm operates without much collaboration and interaction occurs primarily through contractual relationships, and consumers get what they pay for. Of course, in some industries, such as healthcare and banking, regulations have always been present to some extent.

In a more straightforward manner, if this is your company's guiding perception, you are in for a big surprise. Today, companies are affected by many different types of regulation in their daily operations. It is reasonable to expect that their business models have been developed under the current jurisdiction. Therefore, many business owners and managers might think this will also be the legal environment they must consider going forward. Well, think again. A brief look at the types of regulation affecting companies and organisations today reveals various

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archetypes of legislation, many of which have some overlap. Therefore, this initial exploration is not exhaustive and will be used as the best possible approximation considering the article's objective.

Regulation affects business model innovation, and Serentschy (2021) provides an initial discussion of what regulators can do in their regulatory practices to foster innovation rather than stifle it. This is also the key objective of the current paper, albeit with a particular focus on business model innovation.

The first category to consider is labour market regulation, including regulation on employment contracts, notice of terminations and other regulations concerning the right to maternity/paternity leave, annual leave, work hours, etc. Tax regulation also closely relates to the labour market in considering personal salary taxes. On the other hand, is the taxation of corporate profits and transfer-pricing legislation. In terms of international law, we find antitrust regulations that encourage competition by limiting the market power of any particular firm. Another arm of labour-market regulation concerns workplace, anti-discrimination, and harassment legislation. When considering future perspectives around corporate stewardship and increased global transparency around corporations' ethical standards, legislation around modern slavery, child labour, human rights and community relations should be considered very carefully going forward.

Consumer protection regulation is a second essential category to consider. This includes consumer rights in the National Purchasing Act, as well as advertising regulations (especially concerning children), e-mail marketing, privacy and the General Data Protection Regulation (GDPR). The latter is a good example of a regulation that could sit in several categories, as it is also critical to data security regulation. As a third category, data security regulation is an area of much attention. It includes forthcoming Artificial Intelligence (AI) regulation from the European Commission, which aims to boost AI technologies while ensuring EU citizens' safety. However, we cannot talk about data security without introducing the realm of cybersecurity (NIS 2 Directive, 2022) and telecommunications regulation.

A fourth fundamental legislation category is that of property rights. These are fundamental to our societies and shape a large extent of our economy, thereby having a significant link to commercial law. Property rights are closely related to private rights and have been discussed in connection with freedom and democracy. Regarding businesses, the recent focus on asset sharing and crowdfunding has put property rights in the spotlight regarding fostering platforms for sustainable business models. Intellectual property rights are a fifth category, including copyrights, trademarks and patents. They can be utilised through licensing and other forms of permits.

The sixth category we explore is that of Financial regulation. It includes and is related to property rights,_commercial laws, filing requirements to the government, Securities and Exchange Commission regulations, and accounting and auditing regulations. The latter sub-category has recently received much attention due to the forthcoming sustainability reporting and assurance standards in Europe and internationally. At the core of the international and European sustainability reporting standards is a requirement to disclose information about the business model with which the given organisation is competing.

Lastly, we consider the category of Environmental regulation. In light of the rising international focus on climate change, which, for example, has led to the European Green Deal (REF), regulation has focused on reducing Greenhouse Gas Emissions. Furthering this, the most recent international (REF IFRS S1) and European sustainability reporting standards (REF ESRS) introduce requirements for companies to assess their direct and indirect energy usage and emissions and the energy and emission used in their value chain (Nielsen, 2023a, Sust.). This will then be required to be anchored in a due diligence process (Nielsen, 2023a, Sust.) so that it can be assured. While the current legislation around environmental effects focuses on the materiality of the impacts and footprint a company has on the environment and also how environmental concerns affect the financial materiality of the organisation, there are many other potential areas where environmental regulation could kick in. Let's look at the Ellen MacArthur Foundation's (2013) work on sustainability. Areas related to reuse, refurbishing and recycling, as well as farming, feedstock and regeneration, are areas that may be prone to further regulation for climate change.

As hinted earlier, some regulation is relatively stable, while other areas of regulation have been on the rise, particularly those concerning digitalisation. Six critical regulatory trajectories appear by crossing the seven overall regulation categories above with the themes drawn forth by the authors in this special issue of the Journal of Business Models. These are discussed in the next section, followed by a transformative discussion of utilising anticipated regulatory changes to the advantage of the business model innovation.

Key Regulatory Trajectories for Business Model Innovation

The viewpoint presented in this article is that regulation will significantly impact business model innovation, which will only increase as business model innovation for the future is driven by technological, data-driven and ecosystem-based movements. Some regulations may positively affect firms' business model innovation possibilities, while others may have negative effects. On another dimension, regulation can directly and indirectly impact business model innovation.

In an early contribution, Butenko and Larouche (2015) argue that the legal literature concerning the interplay between innovation and law is split between law and economics and law and technology. Both exist in parallel but are largely non-intersecting. In later research, Blind et al. (2017) studied the impact of regulation on innovation under different degrees of uncertainty. They found that regulation leads to lower innovation efficiency in high market uncertainty. This is confirmed by Aghion et al. (2021), who find that regulation leads to lower innovation intensity.

On the positive side are examples of direct environmental regulation creating new markets for innovative solutions due to a higher demand for clean energy technologies and intellectual property laws encouraging firms to invest in research and development. Other, more indirect types of regulation may level the playing field by preventing established firms from using their size and power to stifle competition, thus creating opportunities for new entrants to the market with innovative business models.

Regulation may negatively affect business model innovation if it makes it more difficult for firms to experiment with new business models or removes incentives for taking risks. For example, financial regulations can make it difficult for firms to develop new financial products. Other problems could be induced by the speed of legislative institutions, whereby regulation can be slow in adapting to new technologies. For example, regulations governing the use of drones have needed to be faster to keep pace with the development of drone technology. Indirect regulation impacts business model innovation, including creating new social norms influencing consumer behaviour. Another good example is the rise of social media, which has led to greater awareness of privacy issues, creating pressures for businesses to commit to protecting user privacy.

This section discusses six critical regulatory trajectories that are expected to influence and form business model innovation in the future significantly. The first three, cybersecurity, artificial intelligence and telecommunications, are associated with technology development. In contrast, the latter three, taxation, asset sharing and crowdfunding, and accounting and environmental regulation, are primarily associated with sustainability and organisational concerns.

Cybersecurity

Given our society's greater reliance on information networks, wireless communication and information systems, and an increased cyber threat, cybersecurity regulation will majorly affect many companies' business model innovation opportunities. This will concern businesses aimed at both business-to-business segments and consumer segments. For example, the rise of social media has led to greater awareness of privacy issues, creating pressures for businesses to commit to protecting user privacy, which was in focus in the recent GDPR act.

Gisca et al. (2023) verify that in the future, cybersecurity will become even more important in the protection of users' privacy and safety. Data privacy regulations are designed to protect personal data privacy. From a business perspective, they can impact information sharing by requiring businesses to obtain user consent before sharing their data with third parties. For example, a car-sharing company may be required to obtain consent from a user before sharing their driving data with an insurance company.

On the business-to-business side, the NIS2 Directive is the EU-wide legislation on cybersecurity. NIS stands for "Network and Information Security", and the directive requires EU member states to identify entities that provide essential services and introduce new cybersecurity measures for these identified entities. It distinguishes between non-critical sectors, critical sectors and sectors of high criticality. Critical sectors are, for example, postal and courier services, waste management and manufacturing. Sectors of high criticality are vital for the economy and society and rely heavily on information and communication technology. These include energy, transport, water, banking, financial market infrastructures, healthcare and digital infrastructure.

NIS 2 will be a constraining regulation because its function is to streamline company security and reporting requirements by imposing a risk management approach. This will imply a minimum list of basic security elements that must be applied. NIS2 reaches beyond the firm's boundaries by addressing the security of supply chains and supplier relationships by requiring individual companies to address cybersecurity risks in the supply chains and supplier relationships. Companies that can operate at the highest security levels or take security levels in their sector to a new level will be preferred partners in Europe and internationally. Therefore, compliance with NIS 2 will become an important value proposition supporting business model innovation in regards to, for example, GDPR, telecommunication, 6G, blockchain and AI. Also, Van Duijvenvoorde (2020) highlights accountability requirements of related innovation and competition policy areas.

Artificial Intelligence

National government agencies and supranational agencies are currently working on legislation, formal regulation and guidance around Artificial Intelligence (AI). For example, the UK Government has announced it is taking a pro-innovation and risk-based perspective to AI regulation. This means that regulators are asked to focus on high-risk concerns and to ensure a framework that will encourage innovation and avoid placing unnecessary barriers in its way.

The European Commission's AI regulation act aims to ensure better conditions for developing and using the technology but holds a distinct consumer protection perspective. EU operates with a high-risk and an unacceptable risk category. AI systems that negatively affect safety or fundamental rights are considered high-risk. Unacceptable risk AI systems are systems considered a threat to people. They include cognitive behavioural manipulation of people or specific vulnerable groups such as children, social scoring and classification of people based on behaviour, socioeconomic status or personal characteristics, and real-time and remote biometric identification systems, such as facial recognition. AI systems found to be unacceptable are to be banned.

AI and Machine learning algorithms pose interesting avenues to business model innovation because they create efficiencies. As Haefner and Gassmann (2023) argue, AI can lead to new business models and new ways of doing business model innovation. Still, AI can also be a part of innovating existing business models. To give an example of this, the following question was asked in Bard, Google's generative AI platform:

"How can we innovate Bosch so that it becomes a more sustainable company?"

Bard answered:

- Bosch is already a global leader in sustainability, but there is always room for improvement. Here are some ideas for how Bosch can innovate to become even more sustainable:
  - Accelerate the development and commercialisation of sustainable products and services. Bosch has a strong track record of

innovation in this area, but it needs to do even more to bring its sustainable products and services to market faster. For example, Bosch could invest more in research and development for renewable energy technologies, energy-efficient appliances, and sustainable transportation solutions.

- Develop new circular economy business models. The circular economy is a new economic model that aims to eliminate waste and pollution by keeping products and materials in use for as long as possible. Bosch can innovate by developing new business models that allow it to reuse, recycle, and repair its products more effectively. For example, Bosch could offer leasing and take-back programs for its products or develop new products designed to be disassembled and recycled easily.
- Use digital technologies to improve sustainability performance. Bosch is a leader in developing digital technologies, and it can use these technologies to improve its sustainability performance and help its customers do the same. For example, Bosch could use artificial intelligence (AI) to optimise its manufacturing processes, reduce energy consumption, and predict and prevent equipment failures. Bosch could also develop new AI-powered services to help its customers reduce their energy consumption and carbon footprint.
- Partner with other companies and organisations to advance sustainability. Bosch can accelerate its sustainability journey by partnering with other companies and organisations that share its values. For example, Bosch could partner with suppliers to develop more sustainable supply chains or with government agencies and non-profit organisations to support sustainability initiatives.

- Here are some specific examples of innovative sustainable solutions that Bosch is already working on:
  - Bosch is developing a new generation of electric vehicle batteries that are more energy-dense, have a longer lifespan, and are easier to recycle.
  - Bosch is also developing smart home systems that can help homeowners reduce their energy consumption and carbon footprint.
  - Bosch is working with farmers to develop smart farming solutions that can help reduce the use of pesticides and fertilisers.
  - Bosch also invests in renewable energy technologies like solar and wind power.

  By continuing to innovate in these areas, Bosch can become even more sustainable and help its customers do the same.

This is a very good answer to that question. However, of course, the answer is not much new or ingenious because generative AI feeds on existing knowledge only. This means that the ground-breaking, creative, cross-fertilized perspectives must be included. However, the test proved the point that AI can help managers, owners and business developers on the way to identifying viable solutions and business model innovations. The only regulatory requirements on generative AI concern transparency requirements, such as disclosing that the content was generated by AI and acknowledging when something is based on summaries of copyrighted data.

Telecommunication

At the core of much of business model innovation has always been information communication technology, creating reach and minimising communication costs. While 5G is being rolled out, researchers and companies are working on the next protocol, 6G, which is expected to be in action around 2030. 5G/6G local networks currently lack legitimacy, and here, regulations and regulators can act as enablers of technology dispersion. Serentschy et al. (2023) discuss how 5G and 6G will require new regulation in telecommunications.

Historically, spectrum and competition regulations have played a pivotal role in the business models that operators apply, either allowing, delimiting, or protecting/safeguarding certain business models. However, changes in the regulative and technological domains significantly impact business decisions, especially the business models employed by the operators (Ahokangas et al., 2013). In the telecommunications sector, regulation and sustainability go hand in hand. They influence mobile operators' business models through the energy efficiency of mobile networks and the consumption of critical and rare raw materials that indirectly and directly set demands and limitations on business model innovation. Additionally, the critical role of mobile communications sets demands on developing and maintaining the security and resilience of networks to ensure societal sustainability.

According to Ahokangas (2023), 6G has massive implications for the types of business model innovation that will be possible, and 6G will be an important general platform for the technologies supporting the Metaverse (cf. Rosenstand et al., 2023). Hexa-X and 6G will likely be a technology that can create disruption because it will allow niche entrants into markets to focus on particular value propositions to customers, create strong niche positions and build the business from there.

Taxation

Tax regulation and the taxation environment can significantly impact innovation ecosystems, for example, by providing incentives for innovation activities within and across firm boundaries. Tax deductions for R&D spending can make it more attractive for businesses to invest in new technologies and products, leading to more vibrant and innovative ecosystems. On the negative side of tax-regulation is that complex tax rules can create uncertainty and make it difficult for businesses to plan for the future. This is especially true in complex ecosystem-based settings, as Lingens (2023) described. When businesses are unsure of their tax liabilities, they are less likely to invest in long-term projects. Furthermore, tax audits can be a burden on businesses and can divert resources away from innovation.

In addition to the direct impacts of tax regulation, tax regulation can also indirectly impact innovation ecosystems. For example, tax regulation can affect the availability of capital for businesses either from professional investors, business angels or banks. In periods of scarce capital, businesses tend to invest less in innovation than otherwise. BMI can potentially prosper from tax regulations because innovation in ecosystems can avoid cash shortages by moving cash liquidity between partners and creating efficiencies around, for example, open innovation ecosystems. Professional investor networks are, therefore, expected to see a surge in activity rates in the years to come.

Asset sharing, crowdfunding and blockchain

A part of corporate stewardship is working towards better resource utilisation and creating fair access to capital, technology and knowledge. Asset sharing is one of the fundamental strategies to achieve this and is, for example, highlighted by the Ellen MacArthur Foundation 2013). Crowdfunding is also a key area that could affect business model innovation, and according to Ferrarini (2017), from a regulatory perspective, we should distinguish between loan-based crowdfunding and investment-based crowdfunding.

Crowdfunding platforms are subject to consumer protection regulations designed to protect consumers from unfair or deceptive practices. For example, crowdfunding platforms may be required to provide clear and transparent information about the terms and conditions of crowdfunding campaigns. The same goes for the terms and conditions of asset-sharing agreements. Businesses may be required to disclose the fees associated with asset sharing and the risks and liabilities involved.

There are several regulatory concerns related to asset-sharing and crowdfunding. The list below is by no means exhaustive but rather indicative of the types of regulation businesses need to be aware of:

1. Intellectual property regulations are designed to protect the rights of creators and owners of intellectual property. They can impact the sharing of assets by restricting how assets can be used and shared.
2. Competition regulations are designed to promote competition in the marketplace. For example, a business may be prohibited from entering into exclusive agreements with asset owners that prevent other businesses from accessing those assets.

3. Tax regulations are designed to ensure that businesses pay their fair share of taxes and may be required to pay taxes on the rental income they earn from sharing their assets. Also, crowdfunding platforms may be required to withhold taxes on rewards that are distributed to backers.
4. Securities regulations will affect crowdfunding platforms that offer securities-based crowdfunding. Crowdfunding platforms may be required to register with securities regulators and to provide investors with disclosure documents that contain information about the issuer of the securities, the risks of the investment, and the terms of the offering.
5. Anti-money laundering (AML) and know-your-customer (KYC) regulations are designed to prevent criminals from using crowdfunding platforms and blockchains to launder money or finance terrorist activities. The Payment Service Directives (PSD 1 and 2) is an example of this type of reform, such as those enabled by Distributed Ledger Technology (blockchains), which may require extensive legal reform in the future.

In addition to these types of regulation, crowdfunding and blockchain may also be impacted by general business regulations, such as contract law and tort law. As these technologies continue to develop, new regulations will likely be introduced. The largely unregulated market environment surrounding cryptocurrencies has been exploited for various fraudulent schemes. Public opinion and policy-makers will also affect the latter because there is often a mistaken equivalence between cryptocurrency and blockchain. Blockchain is a unanimous agreement among participants regarding the legitimacy of recorded transactions, thereby eliminating the need for a centralised authority to move money.

Asset sharing has already been a major driver of BMI for some years, and crowdfunding mechanisms have also had interest. The move to mainstream thought for these two mechanisms, as well as blockchain, can help move innovation toward sustainability and shared stewardship.

Accounting and environmental regulation

In light of the current focus on climate change, environmental and accounting regulations will affect business model innovation. Companies and organisations worldwide will be scrutinised to explain their footprint on people, the planet and society and how climate-related risks will affect their operations. These two perspectives are also in conjunction denoted as double materiality (Nielsen 2023a).

Environmentalists fear that policymakers will emphasise the latter, outside-in perspective, also called financial materiality. This would leave companies only being required by regulation to report on basic emissions, social, and governance metrics and keep a report conveying a true picture of their footprint private. This is similar to the arguments made by Nielsen and Madsen (2009) that managers will be faced with having to select which information to report. The accounting field has been down this road of argumentation before. The question is whether new communication technologies and media platforms will be able to improve corporate accountability this time.

Environmental regulation will focus on reducing emissions. In the REGS model, Nielsen (2023b) provides a list of ten essential environmental aspects to consider for the disclosure of environmental impact:

- Emissions and emission reductions, incl. GHG
- Air quality
- Energy management
- Water and waste management
- Waste and hazardous materials
- Ecological impacts
- Substitution to recycled materials
- Reusing and recycling materials
- Efficiency in materials sourcing
- Degree of green energy use

The European Sustainability Reporting Standards (ESRS, 2023) require companies to relate their metrics to risks and opportunities based on their business models, a notion that Roslender & Nielsen

(2015) pitched while arguing that this would also require a non-financial understanding of business models, including an intricate understanding of the value proposition to customers (Roslender & Nielsen 2022).

Therefore, environmental and accounting regulations are intricately connected and understanding them properly offers potential avenues towards business model innovation. For example, Montemari and Nielsen (2013) illustrate how understanding value creation flows can lead to generating new business models, while Nielsen et al. (2017) and Montemari et al. (2019) illustrate the connection between performance metrics and business models. The ten environmental aspects above are precisely positive potential business model innovation trajectories from challenges posed by regulation.

Utilising Regulation for Transformative Purposes

As argued in the six subsections above, regulation can positively and negatively affect a company's space for viable business model innovation. While spotting the negative consequences of regulation is often easy, spotting the opportunities may sometimes take a little work. From the conceptual discussions, some patterns emerge. The positive nodes are easy to identify. Some companies are provided business opportunities in new regulations because their products, services or technologies can be a part of new requirements and solving jobs-to-be-done for someone.

However, when regulation poses a challenge, a constraint or a restriction, you need to ask how this will affect the value proposition to your customer. New

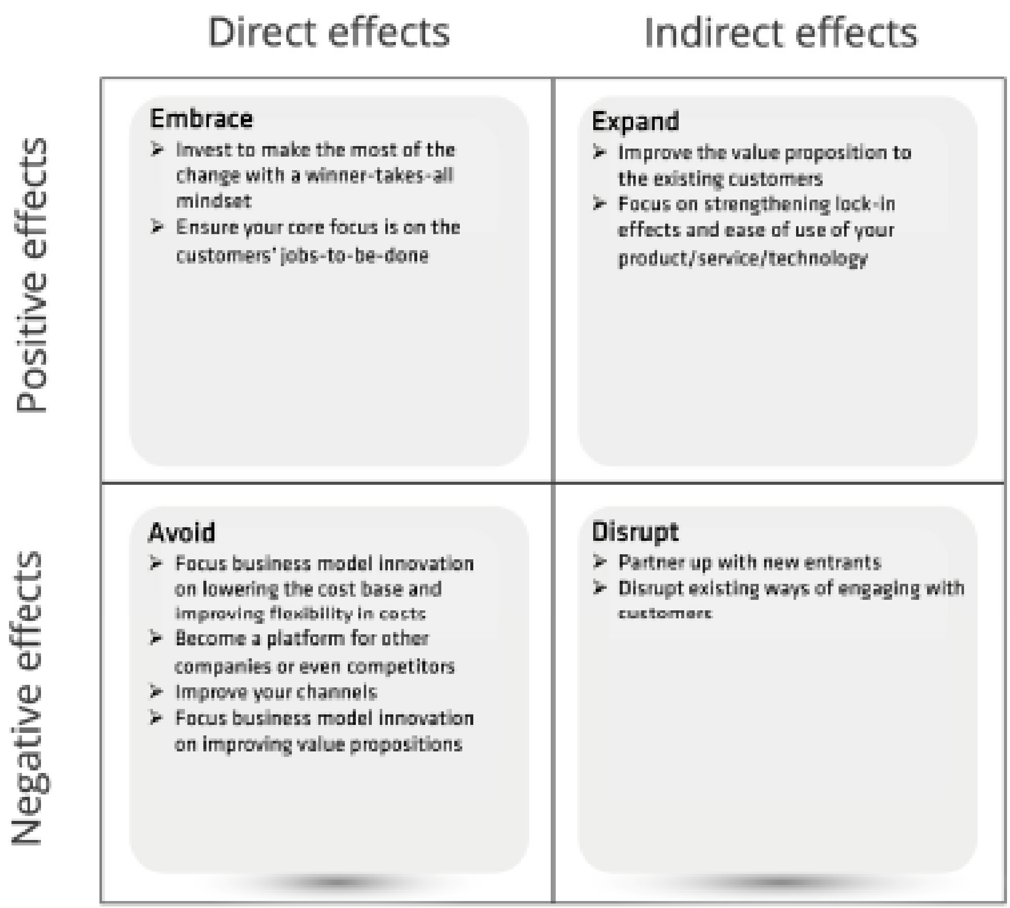

Figure 1. 2-by-2 matrix to discuss the effects of regulation on business model innovation

regulations may make some things tougher or create barriers. Relevant business model innovation questions are:

- How do you avoid the barriers or challenges, or how do you prepare a service that eliminates these barriers altogether?
- Regulation may make some activities more expensive, for example, due to excess administration. How do you share that expense burden, or how do you invite others in to share that burden (customers, suppliers or even competitors?)
- How do you utilise your competencies to beat the competition to a better value proposition under the new regulative requirements, even marginally?
- Given new regulations, which new types of competitors can enter the market and disrupt the existing industrial order? How do you partner up with them, or how do you buy a stake in their business to minimise your portfolio risk?

Faced with such uncertainties, management teams need a process from which to organise relevant information. One way of doing this is to use the two dimensions offered above, where the effects of regulation are split into positive and negative effects on the one hand and direct and indirect effects on the other. This gives the 2-by-2 matrix in Figure 1, which can be used as a starting point for discussing how business model innovation should be focused, considering the new regulatory context.

Concluding Remarks

What should be your business model innovation strategy in instances where regulation will have an effect on your business opportunities? How should you think about business model innovation, and where do you start? Forthcoming regulations on cybersecurity, AI, telecommunication, sustainability and environmental footprints will challenge companies and their value creation. The arrival of ecosystems, asset sharing and crowdfunding already have been doing so for a while.

In two other contributions to this special issue, Ricart (2023) discusses the potential of relational business models, and Lingens (2023) discusses ecosystems. Both support BMI in more digitally regulated markets, as the current outlook predicts. Successful BMI will largely depend upon innovation with partners, as was illustrated in Lund and Nielsen's (2014) seminal developments on network-based business models. Many of the negative regulatory effects we see here can be related to the constraining effects of value creation in focal firms.

Relational business models and ecosystems and the scalability mechanisms associated with network-based business model innovation (Nielsen & Lund, 2018) can help unlock value potentials in regulated settings. According to Lund & Nielsen (2018), crucial questions that foster business model innovation include:

6. Are there potential strategic partners that can offer features that enrich the existing value proposition to our customers (for free) while receiving value back themselves?
7. Are there alternative ways of generating revenue?
8. Are there alternative business model configurations that free the business model of existing capacity constraints?
9. Can the business model be changed to a platform for other businesses to buy into?
10. Is it possible to change existing stakeholders' roles and utilise them in simultaneous roles in the business model?
11. Who would pay for either access to our customer base or knowledge about our customers and their characteristics?
12. How strong are the "hard to copy", and how long are the "time to copy" attributes of our current value proposition towards customers?
13. Which mechanisms are in place to create lock-in of our customers?
14. How agile is our company towards threats from new entrants or new technologies, and how quickly would we be able to readjust?

However, as is always the case when some problems are solved – new problems appear on the horizon. Among the snags and hitches that arrive with network-based business models and ecosystem-based business model innovation are elements of building and maintaining trust among strategic partners, sharing of culture and values, and ensuring a fair dispersion of value creation and value destruction across all stakeholder groups.

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